





# PUBLIC ROADS

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FEDERAL WORKS AGENCY  
PUBLIC ROADS ADMINISTRATION

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ATTRACTIVE PARKING LOT IN WASHINGTON, D. C.

Photo by American Automobile Association

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Highway Research*

*issued by the*

FEDERAL WORKS AGENCY  
PUBLIC ROADS ADMINISTRATION

D. M. BEACH, *Editor*

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*The reports of research published in this magazine are necessarily qualified by the conditions of the tests from which the data are obtained. Whenever it is deemed possible to do so, generalizations are drawn from the results of the tests; and, unless this is done, the conclusions formulated must be considered as specifically pertinent only to described conditions.*

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# THE PROBLEM OF PARKING FACILITIES

REPORT OF THE DEPARTMENT OF FINANCE, HIGHWAY RESEARCH BOARD,<sup>1</sup> THOMAS H. MacDONALD,  
CHAIRMAN, COMMISSIONER, PUBLIC ROADS ADMINISTRATION

**D**URING the early road-building era, efforts to provide highway transportation service were directed exclusively to the vehicle in motion on the assumption that the vehicle at rest could take care of itself. This assumption at one time was generally valid, for parking at the curb furnished adequate terminal facilities for the motor vehicle, as it had for the horse. Today, however, the growth and concentration of motor-vehicle ownership and use have reduced curb space to relative insignificance in relation to the demand for parking accommodations in downtown areas, leading to the necessity of furnishing this service off the street. Failure to recognize the need for off-street terminals in conjunction with the urban highway system, and inability or unwillingness on the part of cities to adopt bold measures for alleviating this problem, have long been a source of inconvenience and a barrier to efficient motor-vehicle use.

It would hardly be possible to convey the eloquence of previous testimony that parking is a serious problem. Elaborate surveys conducted in many cities already seem to have proved that further street parking is a mathematical impossibility. Yet the counting and recounting of potential parkers and available parking accommodations have generally led to only superficial recommendations affording little relief, with the result that the city and the motorist have accepted their predicament as a matter of course. A recent trip through the United States, for example, revealed that municipal governments have generally done little of real significance to alleviate parking difficulties, and instead have sponsored policies which are a definite hindrance to any sane solution. Municipal interest in some cases seemed to be limited to the apprehension of illegal parkers and the revenue possibilities of parking meters, while in others the inability to cope with parking difficulties has created the attitude that effective measures

The off-street parking problem is a significant factor in highway finance because of its relation to urban congestion and to the provision of express roads into cities designed to furnish more convenient access to central business districts. Yet today efforts to meet this problem by providing adequate low-cost parking facilities have been generally feeble and ineffective. In most cases the American city has done nothing to help itself, and in many cases it has adopted policies which constitute a definite hindrance to any sane solution.

The parking problem is discussed in terms of the general problem of providing a complete highway transportation service, and in relation to the general transportation problem of urban areas and the general problem of city planning. Three types of parking facilities are described: commercial, private, and municipal. Cost conditions are described for each of these types of operation and consideration is given to methods of equitable payment. It is found that there are numerous inadequacies in current provision of terminal accommodations by private initiative and in view of these, the following means are suggested by which government may assume its proper responsibility.

1. Municipal governments might encourage private operators by eliminating license fees on parking lots, by lowering property assessments on land used for parking, or by the abatement of taxes on such property. These concessions would result in the reduction of parking costs, on the principle that the benefit of parking facilities would increase surrounding land values and help to rehabilitate the city.

2. Cities might also assist private enterprise by furnishing adequate street approaches, by enforcing street parking restrictions, by leasing public lands to private operators, and by planning the most desirable locations and designs for future parking facilities. Enactment of building codes requiring the provision of off-street facilities for new buildings should be extended.

3. The success and growth of municipal parking accommodations suggests further development of public ownership and operation and the passage of necessary legislation to permit the acquisition and financing of land for this purpose.

4. State governments might contribute to a solution by permitting the use of revenue bonds for parking facilities and the servicing of these with shares of State motor-vehicle revenues at present being made available for municipal streets.

5. The Federal Government might assist in furnishing land by R. F. C. loans or the demolition of condemned buildings through W. P. A., and by sponsoring adequate surveys and planning of parking needs.

are no longer possible. Yet in view of the importance of the problem the wonder is not so much how it can be solved as how it has so long escaped solution. In one city, for example, a survey of the downtown area revealed that 93 percent of all vehicles in the district were parked and only 7 percent moving on the streets.

Two years ago a report was transmitted to the Congress by the President of the United States containing a master plan for highway development (25).<sup>2</sup> This report outlined the need for express highways into the cities to permit easier access to the central districts, which are the ultimate destinations of most main line traffic entering the urban areas. The present report is an attempt to supplement these plans by discussion of the simultaneous need of accommodating the vehicle after its city terminus has been reached, and of removing to off-street facilities all vehicles parked at the curb where they interfere with the efficient movement of traffic. The magnitude of this task and a growing recognition of public responsibility for its performance have suggested a review of the nature of the problem and its solution as they concern the problems of highway finance.

## PARKING AN ESSENTIAL PART OF COMPLETE TRANSPORTATION SERVICE

It is not a new idea, but an important one, that highway transportation constitutes not merely the movement of vehicles but the function of getting from one place to another. The provision of motor highways must, therefore, comprehend this over-all service from origin to destination, since exclusive concern with the ability of the automobile to go and not to stop makes impossible a full realization of the speed, economy, and convenience of efficient highway service. For example, economy is greatly reduced when high terminal fees are added to vehicle operating costs, or when extra distance must be traveled to a parking space; likewise

<sup>1</sup> Prepared for the Department by Wilfred Owen.

<sup>2</sup> Italic figures in parenthesis refer to bibliography, p. 118.

in terms of total highway transportation cost it is uneconomical to provide storage space on expensive street pavement when such use results in traffic congestion, or to widen pavements and then permit parked vehicles to reduce effective width. Parking on the street is expensive. In fact it has been estimated that the cost to the city of providing curb space for one vehicle on Fifth Avenue, New York, is approximately \$142 per month, or about 10 times the cost of parking in a modern garage (8).

With regard to over-all speed of motor-vehicle service, the time spent in locating a place to park and walking to and from it considerably reduces the swiftness of automobile travel; and the task of finding terminal accommodations within reasonable reach of the motorist's destination renders motor-vehicle service in many urban communities irksome rather than convenient. As an illustration of the time-consuming process of urban motoring, tests made of the progress of a commuter from a suburb of Washington, D. C., to the downtown district revealed that average running speed for the automobile was 14 miles per hour from origin to destination; that after the driver had found a place to park, the speed had been reduced to 9.9 miles per hour; and that accounting for the time spent in walking back to the office, the over-all average speed was further reduced to 7.3 miles per hour, or approximately half the actual running speed (9).

The point to be emphasized, therefore, is that parking is not an isolated issue, but an intimate part of providing fast, cheap, and convenient highway transportation service. Failure of the street itself to provide complete service in terms of adequate parking as well as traffic movement has not altered this fact, but has merely necessitated the dedication of additional facilities off the street. The problem of financing these facilities is therefore closely allied to the whole question of highway finance, just as rail service involves the railroad terminal, or as airports and docks must be furnished in providing transportation by air and water.

In addition to this consideration, the highway problem is part of the general problem of providing transportation in urban areas, for the planning of urban highway service through provision of motorways and parking facilities cannot achieve the optimum result unless decisions are made in conjunction with possible alternative improvements in transit facilities. Important factors in this choice are the relative costs of individual and mass transportation and the convenience and efficiency of each in terms of serving the peculiar needs of a particular urban area. It is also significant, moreover, that transportation is not an end in itself but only a means of implementing some other objective, so that the parking problem, as part of the transportation problem, cannot be viewed completely without reference to the broader problems and policies of the whole city in terms of land use, urban finance, and the pattern of municipal development.

#### CITY TRAFFIC PROBLEMS NOT SOLVED BY FLIGHT TO SUBURBS

This intimate connection between transportation methods and municipal patterns is illustrated by the history of urban growth. In the days of horses and pedestrians the city remained small in size because its radius was determined primarily by the time it took to commute. The streetcar later increased this radius, and by permitting mass movements of commuters it

encouraged vertical development of the downtown area. Finally came the automobile with its much greater travel possibilities, extending the area of urban influence many times and making it possible to escape the old city area made distasteful by unintelligent land use and planless growth (4).

The problems raised by these trends in urban development are of grave concern to most large cities, and considerable effort will be required to determine proper steps to halt their disastrous consequences. For disintegration of the city appears to be not merely the temporary effect of a readjustment in the urban pattern, but a more permanent malady which spreads with attempts to escape it. Thus the trend began with the gradual abandonment of congested and run-down areas, as evidenced in the city by slums and vacant lots, and in the suburbs by an outcrop of new business establishments and satellite communities. With the costs of public services remaining high even in decadent areas, other more productive districts were called upon through higher tax burdens to subsidize those parts of the city no longer self-supporting. In St. Louis, for example, taxes levied in slum districts amount to only about 40 percent of the costs of municipal services furnished these districts, and a large percentage of these levies are delinquent. On the other hand, the central downtown district pays two and one-half times as much in taxes as it receives in the cost of municipal services rendered (21). This situation, typical of our large cities, has led to further withdrawal of business from expanding areas of high-tax property, with consequent extension of blight, a need for further subsidy, and the movement of taxable values beyond the jurisdiction of the city.<sup>3</sup>

Abandoning the city for the suburbs, however, does not long afford relief from urban troubles. For as the plight of the downtown district produces increasing outward movement, those who previously sought the city limits find that the edge of the city has itself moved farther outward, and that most of the mistakes which led to the original exodus from the downtown area are committed again in the suburbs. Absence of zoning regulations or lack of zoning enforcement permit business to encroach upon residential areas, causing further population movement and depressing residential real estate values. Failure to protect new highways from harmful uses of abutting land and neglect of necessary parking accommodations render the outlying shopping district as inaccessible as the central area it sought to replace. Indiscriminate and scattered development of real estate over wide areas makes unit costs for public services unnecessarily high, and because there is often no way of furnishing satisfactory mass transportation for the dispersed populace, commuting to the central business district must be accomplished largely by automobiles, with consequent multiplication of street congestion and parking difficulties.

The question naturally suggested by consideration of the urban problem is how this diseased condition has been permitted to thrive in American municipalities. One answer seems to be that in spite of the preponderant role of our cities in the national economy, public concern in this country has always been directed chiefly toward farm and rural problems, as demonstrated in transportation by traditional emphasis upon rural highways and intercity traffic, and by the comparative neglect of terminal problems, municipal street facilities

<sup>3</sup> For an enumeration of the causes of urban decentralization, see the preliminary report on "Decentralization" by the Urban Land Institute, Chicago, April 1940.



Photos by American Automobile Association

IN LARGE CITIES, EVEN PARKING SPACE IN ALLEYS IS AT A PREMIUM.

and mass transportation. The failure of cities to take appropriate measures in their own behalf has resulted in large part from the fact that our Federal and State governments were inaugurated at a time when no urban places of importance existed. Today, therefore, the city finds itself "almost completely disfranchised by our constitutional system," with many major programs in transportation as well as in other fields "throttled from sheer fear on the part of city officials who know from bitter experience that that city's governmental powers are not commensurate with its growing functions and responsibilities" (11). It is these conditions which constitute the setting in which the parking problem has emerged. Any solution of that problem must therefore take into account over-all needs for solving the whole urban dilemma.

#### PARKING NOW BEING FINANCED BY SEVERAL MEANS

*Types of operation.*—Payment for off-street parking in the central city varies considerably with the methods used to provide facilities, of which there are three general categories: Private facilities, privately operated public facilities, and public facilities. Today the second category, the privately operated public facility, which may be either a parking lot or a garage, is providing the major parking capacity in our downtown areas. Payment for these commercial facilities is assessed entirely against the motorist through direct cash charges, except where payments are made by stores to provide their customers a period of free parking. In the case of private accommodations operated in connection with retail stores, hotels, or other business establishments, there is no universal means of exacting payment. In some cases the motorist pays directly for the service, while in others the whole cost may be absorbed by the business establishment, or there may be some sharing of responsibility by the vehicle user and the business. Finally, parking may be a municipal operation, with facilities furnished free to the motorist or at low rates made possible through sharing of the bill by property owners or general taxpayers.

This variety of responsibilities established in paying

the parking bill is not unlike that encountered in providing the streets themselves. For just as the motorist, the property owner, and the city share in the provision of adequate pavements for moving traffic, so also the necessity of furnishing terminal space suggests that access to the downtown area is of advantage not only to the motorist, but to the property owner, the merchant, and the city itself. Decision as to how the bill should be paid depends not only upon the financial condition of the individual city, but upon the manner in which facilities are provided, since conditions of cost and possible methods of financing differ with each operating category.

*Varying cost conditions.*—Under private operation of public lots the land used for parking is generally leased for an amount sufficient to pay taxes. In addition to this payment of rent, additional cost items include a return to compensate for private initiative in managing the enterprise, and generally a license fee payable to the city. Analysis of the cost per car of providing privately owned parking lot facilities has revealed that 36.3 cents out of every dollar represent return on investment, and that property taxes and license fees constitute another 10 cents.

Under municipal operation, however, cost conditions may be entirely different. Parking may be provided on land which has long been in the possession of the city, involving no cash outlay. Appropriate sites are often available on land which has become public property through tax delinquency, or on remnants left from some previous public project. Removal of a public building may also provide usable property, or land may be acquired as a gift. In the event that a municipality should acquire land directly for parking facilities, however, total costs incurred would still be lower than under private ownership. For on the theory that the whole city would benefit, taxes and return on investment might be foregone, and operating costs for municipal facilities have generally been kept at a minimum.

Private parking accommodations present still further variations in cost, for parking facilities may be provided

as part of the building, or on adjacent property previously available or acquired specifically for that purpose. Cost figures for merchant-owned parking facilities are in general much lower than those for privately owned public facilities, not only because of the possibility of providing them in conjunction with existing property and business organization, but because a direct return on the investment may be foregone in view of the profits from increased sales.

*Private vs. public operation.*—The problem of how parking should be financed, therefore, leads inevitably to the question of whether operation should be private or whether some degree of municipal action is necessary. Traditionally, American enterprise has been conducted on a private basis, with government performing only those functions which private endeavor has been unable successfully to provide. In other words, our economy is the joint product of private and public action, based upon the belief that each function should be assigned to whichever type of enterprise can do the best job. Obviously this arrangement comprehends certain realms of activity which are difficult to classify in one sphere or the other, but a satisfactory decision is not impossible if a thoughtful evaluation is made of the alternative methods. The following critique of existing private parking facilities is intended to point out some of the reasons why private initiative has failed to solve the problem, including not only those weaknesses which are believed to be inherent in the private operation of parking facilities, but other factors which may be susceptible to correction.

#### REASONABLE FEES AND CONVENIENT LOCATION REQUIRED

*Trend in commercial facilities.*—In the absence of municipal action there has been little reluctance among private interests to establish parking stations. The rate at which this responsibility has been assumed is illustrated by Los Angeles, where the number of off-street parking facilities increased from 50 in 1922 to 920 in 1938, with capacity expanding from 4,000 automobiles to 65,000. Chicago had 60 off-street facilities in 1927 and 237 in 1938, and today one-fourth of the Chicago downtown area, excluding streets and railroad properties, is used for open parking lots. Similar trends are reported from every large city. Philadelphia had 100 lots in 1931 and 800 in 1938; Cincinnati nearly doubled its parking lot space in the period from 1932 to 1936, and Detroit lots could accommodate three times as many cars in 1937 as in 1927.

Unfortunately, however, solution of the parking problem involves not merely the provision of space, but of space properly located and attractively priced. These qualifications were recognized 17 years ago at the National Conference on City Planning, where it was stated that parking rates must not be "too high to be popular," nor parking locations "haphazard and illogical" (27). The fact that current efforts by private enterprise often fail to comply with these specifications, however, is suggested by figures describing the use of off-street facilities. In New York City a survey of parkers conducted in a congested downtown district revealed that while 15,000 cars were parked at the curb, only one-third of available off-street space was being used, leaving 12,000 spaces empty (6). In Detroit the situation was much the same. Within four-tenths of a mile of the central district there are 32,000 off-street parking spaces, yet a count conducted at the peak hour, 2:30 p. m., revealed that only 37

percent of this space was occupied. "It would seem futile," therefore, "to increase the number of berths unless at low rates and convenient locations" (10).

*Parking lots.*—As a result of the rapid increase in privately operated public parking lots during recent years, these facilities are now the most prevalent type of off-street parking accommodations. In the average city contacted by the American Automobile Association for its report on terminal facilities, the parking lot was found to constitute 58 percent of total off-street parking space and it did 78 percent of the business (1). These figures, however, are more an expression of the plight of the motorist than of the popularity of the average parking lot. Over-crowded, over-priced and ill-designed, these unattractive properties resemble more closely the scars of mass bombings than utilities performing a public service. Among the specific charges which have been brought against them are the following:

1. Location of the parking lot is generally dependent upon the location of vacant property which cannot return sufficient earnings in any other use, rather than being governed in accordance with studies of traffic origin and destination, the effects of terminal location upon street use, and the relation of these factors to the general urban problem.

2. The size of lots is likewise determined by the fortuitous circumstances governing their location, in spite of the fact that demand conditions as well as the relation of terminal size to street congestion should regulate.

3. Land for parking is furnished on a temporary speculative basis with the intention of later conversion to more profitable use. The dilemma thus arises that if greater accessibility created by parking facilities should restore values in the business district, land now used for parking would probably be withdrawn for building construction.

4. The temporary nature of parking lots, many of which are operated on one-year leases, makes improvement of the property uneconomical, with the result that the benefit of parking facilities in terms of transportation service may be offset by the depressing effect of unsightly property upon surrounding land values.

5. The whole cost of parking is charged to the motorist, in spite of the fact that the accrual of benefits to merchants, adjacent property and the city may suggest a more equitable cost allocation.

6. Rates must be charged to cover all costs in connection with the operation of the lot, whereas the broad interests involved in the availability of parking facilities suggest that these properties, like the streets themselves, should be operated on a noncommercial basis in terms of profit to the community as a whole.

7. Because of the compulsion to produce an optimum return, parking lot charges, particularly for short-time parking, are often considered unreasonable, and the desire to operate at capacity often results in irresponsible handling of vehicles, illegal use of surrounding streets, crowding and inconvenience to the motorist.

#### COST OF GARAGE PARKING LOWERED BY NEW DESIGN

*Garages.*—In the survey of the American Automobile Association, approximately 42 percent of the total off-street parking space in the average city contacted was furnished by garages, but these performed only 22 percent of the total business. Many of the criticisms of private operation cited in connection with the parking lot are likewise applicable to the garage, but the latter,



Photos by American Automobile Association

**OVER-CROWDED, OVER-PRICED, AND ILL-DESIGNED PARKING LOTS. USE OF SUCH MAKESHIFT PARKING LOTS OFTEN RESULTS IN IRRESPONSIBLE HANDLING OF VEHICLES, ILLEGAL USE OF SURROUNDING STREETS, CROWDING, AND INCONVENIENCE TO THE MOTORIST.**

representing a relatively permanent type of facility which has generally been in operation for a number of years, introduces additional factors:

1. The early establishment of many garages has frequently resulted in their being poorly located with respect to current motor-vehicle terminal needs.

2. Garages were first built when there was no lack of street space available for parking, but when enclosed parking was a luxury service to protect the vehicle from the elements. These buildings were accordingly of ornate design, hence high cost, in keeping with the type of patronage. Today, however, technical improvements in the motor vehicle have eliminated

the need for escaping the weather, and the lack of street space has made off-street facilities a necessity rather than a luxury.

3. The extra cost of pretentious garage structures, their inefficient use of space and the high labor costs required in operating them are reflected in rates which most motorists are unwilling or unable to pay.

Garage design has undergone very considerable revision in recent years, however, and the new open-wall garage is now a demonstrated possibility for the future. This parking structure embodies the old garage principle of multiple-level parking, but is designed specifically for storing cars at low cost by in-

corporating certain construction economies. The omission of walls makes ventilation and sprinkler equipment unnecessary, and ramps are provided for quick and easy movement of vehicles between floors. Low-studded construction and all possible utilization of space, including the roof, are also distinguishing characteristics of the open ramp structure. The combined effect of low first cost and a minimum of operating expense results in total costs from one-third to one-half those of the old enclosed garage.<sup>4</sup> Thus far these structures have generally been established for private provision of parking service by department stores, although their use for privately operated public parking is now established in several cities, including Boston, St. Louis, and Washington. Under the latter type of operation there appear to have been no large price reductions passed on to the motorist, but several cities have recently been considering plans for municipal operation of open-wall garages at lower figures.

*Merchant facilities.*—In the past several years there has been a considerable extension of shopper garages and lots provided in conjunction with retail stores. Much of this activity has been in suburban areas where land may be cheaper or where stores have been newly located, but in the downtown area there have also been outstanding successes in merchant operations, both individual and cooperative. Indeed, the downtown merchant has generally been far more alert to the consequences of inadequate access to the city than has the city itself.

#### MERCHANT'S COOPERATIVE PARKING PLAN SUCCESSFUL

A recent survey of customer parking facilities offers interesting information concerning the extent of merchant attempts to provide for the shopper (15). Data from 118 stores in 75 cities located in 31 States revealed that 53 stores, or 45 percent of the total, offered parking facilities of some kind. The same number had no parking arrangements whatsoever, while the remaining 12 stores, or 10 percent of the total, had formerly provided parking services but had discontinued them. As to the type of facility used, 10 of the 53 stores providing parking service had their own garages, 8 provided garage parking through arrangements with a public garage, 14 parked cars on a lot which they owned or leased, and 17 had arrangements with a commercial lot. Four stores had more than one type of service.

To cite some of the most successful ventures in merchant provision of parking facilities, in St. Louis a combined garage and bus service has been established for the use of shoppers patronizing any of 130 stores and offices in the downtown section. Each time a purchase is made in a member store ten cents is deducted from the total parking fee. These deductions are applied to reduce the regular rates of 10 cents for the first hour, 20 cents for two hours, 30 cents for three to five hours, and 35 cents for all day. In addition, frequent bus service is provided without charge along a route close to member stores. The success of this "Park-N-Shop" plan is measured by the fact that patronage in 1940 increased from 7,000 shoppers in January to 17,000 in April and 30,000 in August.

Another successful merchant venture is the Oakland, Calif., experiment started in 1929, known as the Downtown Merchants Parking Association. This organiza-

tion, now comprising 164 members, has acquired a number of strategically situated low-income properties for parking lots designed to anchor the business district. Land is acquired either by purchase or by lease, with a 10-year minimum term for leased property and an average rental of 1½ cents per month per square foot. The rate for parking in the Oakland lots is 10 cents per hour, but the motorist can park free for 2 hours by having his parking check validated in a member store, regardless of whether a purchase is made.

At the end of each month the Parking Association subtracts from its total costs the cash receipts received from nonvalidated or overtime parking, or from night parking, which is provided for 15 cents without validations. This cash income amounts to about 40 percent of total costs. The number of validated checks is then divided into this net cost figure to obtain the unit parking cost per validated ticket, now about 4 cents per car and 50 percent lower than when the organization began operations. The number of checks validated by each store is then multiplied by 4 cents to obtain the total charge per store. One member, a large market, pays as much as \$1,000 per month to park its motoring customers.

An important observation from the Oakland experience is that stores which joined the Parking Association rather than operating through established commercial lots have lowered their parking costs about 25 percent.<sup>5</sup> In addition, there is a tendency among members to consider that such parking costs are actually chargeable to advertising, since the payment of 4 cents is guaranteed to bring a customer into their stores. Over a million and a quarter cars have been accommodated during 1940, and Oakland merchants have made the provision of parking facilities in the downtown area almost unprofitable for independent operators. This experiment has been an excellent demonstration of the possibilities of cheap nonprofit parking in downtown areas. With cost concessions possible under municipal operation, parking rates could be made even lower.

In contrast to well publicized successes, however, there are numerous instances where stores are losing heavily on parking arrangements, or where free parking privileges have been abused or abandoned. Moreover, most stores are not large enough to provide their own accommodations, and where arrangements must be made with a commercial lot or garage the cost is often a considerable burden. On the other hand, an association of merchants formed to provide joint parking accommodations has this defect; that after costs have been lowered beyond a certain point there may be a desire on the part of member stores to maintain their competitive advantage by restricting entrance into the organization. Thus a serious obstacle is placed in the way of eventually extending the benefits of low-cost parking to the whole city. The fact remains, moreover, that the short-time shopper does not constitute the whole parking problem, nor can the premise be accepted that downtown merchants should shoulder the parking burden alone, while the city, which is largely dependent upon the success of business, does nothing.

*Existing facilities.*—Failure of private enterprise to produce a satisfactory solution to the parking problem has led in a number of cities to the adoption of municipally owned and operated facilities as a public responsibility. Public action in this field has now been established 15

<sup>4</sup> The so-called "cage" parking structure established in Boston in 1934 can be constructed at 10 cents per cubic foot instead of the usual 25 to 35 cents for the ordinary garage, according to the patent holder, Mr. Samuel Elliot.

<sup>5</sup> According to the American Automobile Association, merchants having their own facilities reported a cost of 6.9 cents per car parked, while those having arrangements with a private operator paid 14.2 cents.



Photos by American Automobile Association

TWO MEANS OF ALLEVIATING THE CITY PARKING PROBLEM. ABOVE, SHOPPING CENTER WHICH PROVIDES OFF-STREET PARKING FOR PATRONS; BELOW, MODERN PARKING GARAGE OF OPEN RAMP CONSTRUCTION AND WITH PARKING ON ROOF.

years or more, with the past few years witnessing the largest increase in such accommodations despite expressions of concern over the encroachment of government upon the garage business.

Among the cities displaying initiative in this field at an early date was Flint, Mich., which established a municipal lot in 1924, followed soon after by Bay City, Mich.; Mitchell, S. Dak.; and Racine, Wis. At this time publicly owned land was also being used for parking in both Cleveland and Chicago, (13) and in 1926 the city council of Lafayette, Ind., authorized a bond issue of \$52,000 to acquire lands for this purpose. The attorneys for the successful bidders at the bond sale advised against the purchase because there was no

court decision in the State establishing the fact that a municipal parking ground constituted a public use. To overcome this objection, the city secured enactment of a State law which authorizes municipalities to establish municipal parking grounds for vehicles; to acquire necessary lands by gift, lease, purchase, or condemnation; and to raise funds by donation, appropriation, taxation, or sale of bonds. The act also ratifies action previously taken by any city for the establishment of parking grounds (20).<sup>6</sup>

Kansas City sought in 1936 to condemn lands for public off-street parking facilities by passing an ordi-

<sup>6</sup> For State law see ch. 15, Acts of Indiana, 1927, or Baldwin's Indiana Statutes, 1934, secs. 11815-11816.

nance for that purpose. Several landowners contested the action, and the State court held that under the then existing laws the city could not condemn lands for parking lots.<sup>7</sup> Attempting to solve the problem, the Kansas Legislature enacted a law which authorized first-class cities having a population of 120,000 or more to establish public parking stations. The validity of this law was questioned, and the State court held that it was unconstitutional because it was a "special law," applying only to Kansas City.<sup>8</sup> The court did not consider the other questions presented in the case. The State legislature, in the meantime, enacted a law which authorizes cities having a population between 60,000 and 100,000 to acquire lands for public parking stations.<sup>9</sup>

The city of Cleveland, Ohio, was enjoined several years ago from using its underground exhibition hall as a public garage. The court held that the city could use the premises for its own vehicles, for those of its officers and employees, or for any other purely public purpose, but that it could not operate a garage as a purely private business in competition with privately owned garages.<sup>10</sup>

Unquestionably, there is an urgent need for legislation in many of the States to provide means by which municipalities can solve their parking problems. Other States which already have some provision in their general laws for municipally owned parking facilities are California, Massachusetts, Michigan, Pennsylvania, and West Virginia.

#### MUNICIPAL INTEREST IN PARKING PROBLEM INCREASING

Information concerning the extent of municipal parking activity is not available, but several indications are available in recent reports. When the Public Administration Service made its parking survey in 1938, one-fourth of the cities studied had established municipal parking facilities, and one-third of these had been developed within the preceding 3 years (16). In a recent report of the New York State Bureau of Municipal Information 53 municipalities in the State were reported to be providing parking lots in their central business districts. The Regional Plan Association of New York has likewise investigated the progress of municipal parking provisions in the New York metropolitan area, where 18 communities of the 54 visited had by 1936 established municipal parking areas for general use (23). Among the 34 municipal lots described in the Public Administration Service report, the largest accommodations were reported in Chicago with 3,500 spaces, Memphis with 3,000, and Quincy, Massachusetts with 1,650.

In New England, reports received by the Regional Planning Commission from localities in that area indicate an expanding municipal interest in parking remedies (14). Among the developments noted are the following:

Derry, New Hampshire—An article was passed at the town meeting in March appropriating money for a municipally owned parking lot.

Exeter, New Hampshire—A generous citizen purchased a useless house close to the center of the village and presented the lot to the town on condition that it be made a municipal parking facility.

Falmouth, Massachusetts—All land owned by the town has been used for parking space where feasible.

Lowell, Massachusetts—Whenever the city has acquired slum property in the downtown section for nonpayment of taxes, its suitability for public parking is considered. If it can be so used, it is graded and lined.

Middleboro, Massachusetts—The town has just appropriated funds to lease land for additional municipal parking space.

Quincy, Massachusetts—The parking problem has to a large extent been solved. A tract of land was taken by eminent domain, immediately in the rear of the business center. It is reported that since these facilities were established in Quincy, half the trade has come from outside communities. Property on the side of the main business street immediately adjacent to the parking area has jumped in value and is now worth 50 percent more than the property on the other side of the street. Quincy merchants estimate that if the free parking plan should be abandoned their sales would drop 25 percent overnight (?).

Salem, Massachusetts—Central parking space of large size owned by city.

Waltham, Massachusetts—Considering large parking area to be financed mostly by merchants and property owners over a 10-year period, with the city abating taxes.

New Britain, Connecticut—A W. P. A. project has been approved to build a large parking garage, with bus terminal on ground floor.

Although the efforts of municipalities to aid in solving the parking problem have generally been more successful in smaller communities, a number of large cities are giving consideration to similar possibilities. In Boston, the Mayor's Committee on off-street parking has reported that effective alleviation of traffic congestion in the downtown business district necessitates the immediate doubling of available off-street parking space, and that this must be accomplished by the city (12). It was decided that the most economical approach to providing cheap parking would be for the city to acquire through a private operator strategically located properties upon which would be constructed multiple-level parking structures of low-cost ramp design. Land and buildings would be financed by means of 20-year bonds. It was believed that a large saving in purchase price could be realized by avoiding eminent domain proceedings and by taking advantage of low municipal interest rates. The Boston report suggested that these properties be leased for private operation, which it is claimed would be cheaper than municipal operation due to civil service requirements. "Such private operations," this document is careful to state, "will also avoid competition between the municipality and other privately operated facilities."<sup>11</sup> The plan represents an investment of \$6,700,000 and would be spread over a 6-year period.

Milwaukee is another city with plans for providing municipal parking areas as part of a program for rehabilitating the downtown section (26). A report on this subject states that between 6 a. m. and 6 p. m., motorists pay an annual sum of one and a quarter million dollars in Milwaukee for parking on private property. In other words, while toll gates on the highways have been eliminated, now that increasing volumes of traffic have rendered street space inadequate, "many people have seized the opportunity of collecting

<sup>7</sup> *Barker v. Kansas City*, 70 Pac. (2d) 5.

<sup>8</sup> *Barker v. Kansas City*, 88 Pac. (2d) 1071. For law held unconstitutional, see 1939 supplement to Kansas General Statutes, 1935, secs. 13-1366 and 13-1367.

<sup>9</sup> See ch. 124, Laws of Kansas 1939, or 1939 supplement to Kansas General Statutes, 1935, sec. 13-1368.

<sup>10</sup> *Cleveland v. Ruple*, 130 Ohio St. 465, 200 N. E. 507, 103 A. L. R. 853.

<sup>11</sup> The city could not make this transfer to private operators without authority from the legislature.

toll privately for parking." The Board of Public Land Commissioners accordingly requested that \$125,000 be appropriated annually for the gradual renovation of Milwaukee, "and to provide efficient use of automobile transportation—with convenient parking facilities." Another large city in the East has prepared extensive plans for the construction of multiple-deck open parking garages on available city-owned property, these garages to be municipally owned and operated as a demonstration project to attract private capital into further provision of similar facilities. For this reason all costs were to be computed as if the properties were privately owned, with the result that the cost advantages possible under municipal operation would thereby be cancelled. In view of the magnitude of the problem confronting this city, the plan appears to be somewhat overcautious.

#### CITIES CAN FINANCE PARKING IN SEVERAL WAYS

*Methods of finance.*—As previous examples have indicated, land used for municipal parking facilities is often already available to the city and does not have to be acquired specifically for that purpose. This was true in most cases studied by the Public Administration Service, which found appropriate sites supplied through tax delinquencies, by gift-taking, by the removal of public buildings, or where remnants had been left from some previous public project. The demolition of public buildings by W. P. A. or of private dwellings in conjunction with slum clearance projects, offers the city an opportunity to obtain desirable sites for municipal parking facilities. When land is obtained by any of these devices, the problem of financing parking is generally negligible. In many instances, however, the city does not own satisfactory sites, making it necessary to purchase, condemn or lease. The problem of financing may then be solved in a number of ways, including general obligation or public revenue bonds,<sup>12</sup> special assessments, general fund appropriations of motor vehicle contributions. For example, Kalamazoo, Mich., has financed a municipal "shoppers parking lot" for free 2-hour parking by charging the cost of the land and improvements to business property through special assessment districts. Instead of a bond issue, money was borrowed from the city cemetery perpetual care fund at 3 percent interest. The city expects to cover operating costs in part at least from cash fees collected for overtime parking (2).

Another interesting plan was developed in 1936 by Garden City, N. Y., which rejected the idea of a common parking lot serving a considerable area and adopted instead the principle of locating facilities in the rear of properties served. The objectives sought were convenient access, the minimizing of property depreciation, and cost reduction by acquiring rearage instead of high value frontage. (18) To finance this \$197,000 parking project, 75 percent of the cost was assessed on a 10-year basis to commercial houses benefiting, while the improvements, amounting to \$46,000, were absorbed in general village expense. No fee is charged the motorist (19).

Although the cost of municipal parking is not generally charged to the motorist directly, wherever this practice has been followed remittance has been made in cash, as in the case of commercial facilities. Under municipal operation, however, there are two unexplored alternatives which appear to have merit. One is the issuance of identification plates for a designated annual

sum, which would admit the motorist to any municipal lot during the year. Proceeds from the sale of these plates would be used to finance such properties, which might be supplied in conjunction with special urban express roads. The second suggested method would be to amend State laws for the distribution of motor-vehicle revenues to permit cities to use their allotments for the purpose of providing off-street parking. In other words, the meaning of the term "highway purposes" would be extended to include terminal facilities.

*Objections to municipal operation.*—Many city officials have expressed the belief that municipal operation is to be avoided because the city should not compete with private garages and parking lots. Obviously the city already competes with private business, however, when it permits free parking on the streets, or when parking meters take the cream of the traffic—the short-time parker—away from private off-street facilities. This argument against public ownership, moreover, is hardly important, since the business of parking cars on lots does not involve a long-term investment or a permanent enterprise so that the transition from private operation would create little hardship. Even in the case of garages, which involve a more permanent investment, the fact that such operations have been generally unprofitable for many years and that most garages are now being rendered obsolete by new designs appear to minimize the effect of a shift to municipal parking operation.

Decision concerning the advisability of private or public operation of parking facilities, therefore, should not be influenced by the desire to preserve existing values. The real issue is simply whether public operation makes possible a better and cheaper service, and judging from the results of private efforts, it appears that such would almost have to be the case. As one writer has commented, private attempts to solve the parking problem "have not anywhere near succeeded in bringing about even reasonable conditions" (24). In spite of the familiar argument that private initiative must be preserved in the parking industry, therefore, it is concluded from the very nature of the problem that "only through public ownership can continued operation and relative permanency of necessary off-street parking terminals be assured" (22).

*Development of mass transport.*—The apparent logic of considering parking facilities an integral part of highway service, hence a public responsibility, does not imply that municipal operation of off-street terminals is the only solution to parking troubles, for the problem might be attacked by reducing the demand for parking space as well as by providing an adequate supply. This approach introduces the possibilities of mass transportation. In spite of the phenomenal growth in motor vehicle traffic during the past two decades, transit facilities still provide the major transportation capacity in most large cities. An illustration of this fact is afforded by surveys of the methods used in entering and leaving downtown Boston on a typical weekday between 7 a. m. and midnight in the years 1927 and 1938 (5). This study shows that despite the rapid shift from mass transportation, particularly by railroad and surface streetcar, to individual transportation by automobile, over half of all the persons entering and leaving downtown Boston still utilize some form of mass transportation. It is reported that 90 percent of New York commuters travel on public carriers, and that in Chicago despite a loss of 20 to 25 percent in mass transportation patronage in the period from 1926 to 1938, and a 44 percent increase

<sup>12</sup> Michigan has a State law which permits municipalities to issue revenue bonds to finance parking facilities.

in passenger-car traffic, less than one-fourth of all commuters travel by automobile. Finally, even in such cities as Los Angeles and Washington, where automobile use has been so highly developed, fully 38 percent of commuting is still accomplished by mass facilities. Lack of highway and parking facilities has obviously been a factor in this high degree of transit patronage.

#### IMPROVED MASS TRANSPORTATION SERVICE A PARTIAL SOLUTION OF PROBLEM

In spite of the need for more satisfactory automobile accommodations in our cities, therefore, it must be remembered that motor-vehicle traffic constitutes but a part of the urban transportation problem. Accordingly, emphasis placed upon this single phase of the problem should not lead to neglect of the needs of a large percentage of the population for better facilities of mass transportation. It is possible that, if the equipment and service supplied by these mass transportation facilities were improved, they would be patronized by many who now use their own automobiles.<sup>13</sup> The result of thus attracting a larger percentage of commuters to mass transportation media might be highly salutary to the downtown district, not only because it would lessen the required amount of parking space, but because street capacity would thereby be enhanced. The American Transit Association has illustrated this latter point with the example of a 60-foot street carrying three lanes of traffic in each direction with no parking. Such an artery would move 3,700 persons per hour if automobiles were used exclusively, assuming an average of 1.75 persons per car. The same street used by both automobiles and busses, however, would move 2,130 persons by automobile, 7,200 seated bus passengers, and 1,800 standing bus passengers, or a total of 11,130 persons per hour. Finally, using this artery for automobiles and streetcars, it will have a capacity of 2,130 automobile passengers, 9,000 persons seated in streetcars, and 4,500 standing, or a total of 15,630 people per hour (3).

These data admittedly demonstrate the superior capacity of mass transportation facilities. It is somewhat ironical, however, that the Transit Association, in computing how many persons could be herded into the aisles, has unwittingly answered the question of why, if transit facilities are more economical, those who are able prefer not to use them. In other words, while mass movement has tremendous possibilities in the solution of urban transport problems, including the parking problem, until more emphasis is placed upon the service factor and less on cost the consumer will exercise his right of free choice.

*Municipal subsidy and regulation.*—Because of the realization that considerable time may elapse before the city acts to make possible attractive mass transportation and adequate municipal parking facilities, certain interim aids are suggested which might afford a measure of immediate relief. Municipal governments might subsidize private operation of parking lots by lowering the assessment of land so used on the theory that parking facilities constitute a public utility. Costs might also be lowered by tax abatement or the elimination of license fees, and the advantage passed on to the motorist by municipal regulation of parking rates. Reduction of parking costs effected by such subsidies would be justified on the grounds that adequate parking at low rates would improve accessibility

to the downtown district and thereby bolster surrounding land values. Cities might also bring about an improvement in private efforts by furnishing adequate street approaches to parking lots, by enforcing curb parking ordinances, by leasing public land to private operators and by exacting strict requirements concerning the appearance of lots, the handling of cars, financial responsibility, and the use of abutting streets.

Among the steps which a municipality might take to provide for better parking conditions in the future are two which suggest immediate action. The first concerns establishment of an adequate parking plan through intelligent study of the peculiar needs of each individual city. The parking study now being conducted as a phase of the District of Columbia Highway Planning Survey, in which the Public Roads Administration and the District of Columbia Department of Highways are cooperating, is an example of the comprehensive approach required. The Washington survey is unique in that it proposes to determine the actual and potential demand for parking facilities generated by varying urban land uses. Data are obtained by means of carefully devised questionnaires directed to the parking habits of the motorist, supplemented by descriptive material concerning the travel habits of 200,000 government and business employees. It is this type of transportation study rather than the meaningless enumeration of motor-vehicle traffic which must indicate proper plans for reducing urban congestion.

A second step having long-range implications is the enactment of building codes and zoning ordinances. A dozen years ago a Detroit engineer issued this warning to constructors: "Take care of the parking demand created, or your building will be obsolete before it is up" (17). Not only are buildings unsatisfactory without parking facilities, but street congestion resulting from new apartments and theaters has been such as to impel many communities to adopt ordinances requiring off-street parking space in connection with certain types of building construction. The American Society of Planning Officials recently issued a selected list of zoning ordinances of this nature in 34 cities. Los Angeles requires that in certain zones "in connection with each and every duplex, double dwelling, multiple dwelling, apartment house, bungalow court, or other multiple family use of a lot, there shall be provided on such lot garage space in a building for at least one automobile for each family unit or apartment contained on such lot."

Hotels are also included in the regulations of some cities, Southampton, N. Y., specifying that "for each sleeping room there shall be a paved or gravel parking space not less than 300 square feet, either on the same lot or within 200 feet of such lot and also on private property." In the case of theaters, Detroit has proposed that 200 square feet of off-street parking space be furnished for every 10 seats, and San Merino, Calif., requires parking facilities for 1 car for every 2 theater seats. Stores are also included in some regulations, Du Page County, Ill., specifying that "no building or structure shall be erected or structurally altered or land used for any purpose which will cause customers, employees, or residents to park their vehicles of transportation for 1 hour or longer unless space for such parking is provided and maintained in the lot or tract of land used." In Los Angeles there is no law to this effect, but merchants are encouraged by the planning depart-

<sup>13</sup> For a discussion of possible transit improvements, see Proceedings, American Society of Planning Officials, 1940, "Highways and Transportation," p. 54.

# SOME LEGAL ASPECTS OF MUNICIPALLY OPERATED PARKING FACILITIES

BY THE DIVISION OF HIGHWAY LAWS AND CONTRACTS, PUBLIC ROADS ADMINISTRATION

Reported by WALTER KURYLO, Junior Administrative Assistant

THE MOTORIST is finding it increasingly difficult to find a parking place for his vehicle at the street curb in urban areas. Privately operated off-street parking enterprises do not provide sufficient accommodations at reasonable prices to alleviate this condition. Consequently, there is serious traffic congestion in business and industrial districts with constant hazard and inconvenience to both pedestrian and vehicular traffic. The involved complexities of this problem have become a matter of real concern to local planning officials. Probably the most plausible solution lies in a further development of the already growing trend toward publicly owned and operated parking facilities. It therefore is believed that a presentation of some of the legal phases of the question would be timely.

This discussion does not purport to be a comprehensive technical dissertation; nor does it attempt to answer all the queries of a legal nature which may arise in any particular community. The varied constitutional and statutory provisions of the several States, the dearth of reported court decisions, and the multiplicity of municipal charters and ordinances make it impossible without careful study to express any opinion as to what might happen under a given set of circumstances. This article merely intends (1) to show the general laws that some of the States have enacted on this subject; (2) to indicate where those laws may be found; (3) to point out hindrances that several municipalities have encountered in this field; (4) to discuss the "public use" question involved; and (5) to emphasize the need for legislation in many of the States, and for proper preliminary action by local officials, if the solution of the urban traffic problem is to be substantially helped through municipally owned and operated parking facilities.

## 10 STATES HAVE LAWS RELATING TO MUNICIPAL PARKING FACILITIES

At least 10 States have made some provision in their general laws for public undertakings in this field. Seven of these States—California, Indiana, Kansas, Maine, Massachusetts, New Hampshire, and West Virginia—merely authorize their municipalities to establish parking places. The other three—Iowa, Michigan, and Pennsylvania—not only empower municipalities to establish such facilities but also expressly authorize them to collect fees for use thereof.

One provision of the California law confers upon municipal corporations of the sixth class (those having

a population not exceeding 3,000) the following authority:<sup>1</sup>

To acquire property required for the parking of motor vehicles and for the opening and laying out of any street, alley, lane or tunnel from the point where the continuity of such street, alley, lane or tunnel ceases, to the point where such street, alley, lane or tunnel again commences; to lay out and improve said street, alley, lane or tunnel; and to pay the cost and expense incurred in the acquisition of the required property out of the general fund of the city.

Another provision of the California law is as follows:<sup>2</sup>

Whenever the public interest or convenience may require, the city council of any municipality shall have full power and authority to order the laying out, opening, extending, widening, straightening, establishment or change of grade, in whole or in part, of any one or more of any public streets, parking places,

Efforts to solve the parking problem through municipally operated facilities have met with varied success. In some instances existing laws have not granted adequate authority for such operations. Some State legislatures have recognized the inadequacy of existing laws and have enacted legislation to make municipal operation of parking facilities possible. Other State legislatures are now considering such legislation.

Proper planning and action by municipal bodies is necessary to establish legislative and judicial recognition of the public nature which the automobile parking facility has assumed, if public efforts to solve the parking problem are to be effective.

squares, lanes, alleys, courts or places within such municipality, and to acquire by condemnation any and all property necessary or convenient for that purpose or any interest therein including an easement or easements for the construction and maintenance of any one or more of any public streets or walks, parking places, passages or ways upon the surface of the earth or in any designated level or levels or slope or slopes, above or below such surface together with a sufficient clearance height thereabove which height shall be conclusively determined and designated by the

city council of such municipality and the leaving to the owner or owners the right to maintain or construct and maintain any building or buildings or other structure or structures above or below, or above and below such street or streets, walk or walks, parking place or parking places, passage or passages, way or ways, and the clearance height therefor so acquired by such municipality.

An alternative procedure which cities in California may follow in developing publicly owned parking facilities, involving the establishment of improvement districts for such purposes, is provided in a recent enactment of the State legislature.<sup>3</sup>

## LAFAYETTE, INDIANA, EXPERIENCE CITED

The law in Indiana on this subject has an interesting background. In 1926, the city council of Lafayette, Ind., authorized a bond issue of \$52,000 to cover the purchase of land and equipment for a free public parking space for long-time parking. The detailed plan in connection with the parking ground involved a building with sanitary facilities, as well as a free checking room; and the entire parking area was to be encircled by a fence. A custodian was to be placed in charge of the

<sup>1</sup> Deering's General Laws of California, 1937, sec. 862.6 of act No. 5233. (Section last amended by Statutes of California, 1937, ch. 659, sec. 5.)

<sup>2</sup> Deering's General Laws of California, 1937, sec. 1 of act No. 8198. (Section last amended by Statutes of California, 1937, ch. 244, sec. 2.) Procedural provisions for operation of this section may be found in the rest of act No. 8198.

<sup>3</sup> California Statutes of 1941, ch. 246, approved May 13, 1941. Detailed provisions can be found in the law.

property to serve as an attendant and as a guard against automobile thefts. The municipal officials acted under a law passed in 1905, which apparently is still in force and reads in part as follows:<sup>4</sup>

The board of public works shall have power: First, to condemn, rent, or purchase any real estate or personal property needed by any such city for any public use, except when a different provision for purchase is made by this act; *Provided*, That when a sum of more than two thousand dollars is required to be paid for condemnation, rent, or purchase of any real estate or personal property, the same shall not take place unless the condemnation, rent, or purchase is specifically authorized by ordinance.

It was contended by the local officials that "it would be difficult to conceive of anything that could be more clearly established as constituting a public use than this plan of providing a parking ground for a number of automobiles." However, the attorneys for the successful bidders when the bonds were offered for sale advised against the purchase because there was no court decision in the State holding that a municipal parking ground constituted a public use. The State law at that time did not specifically authorize municipalities to construct or maintain public parking lots. To overcome this objection, the city secured enactment of a State law which reads as follows:<sup>5</sup>

In addition to any and all other powers conferred by law, any city of this State is hereby authorized and empowered to acquire, establish, improve, maintain and operate municipal parking grounds for vehicles. Any real estate or personal property, or any interest therein, needed by any city to establish, improve, maintain or operate such municipal parking grounds may be acquired by such city by gift, lease, purchase or condemnation. Funds for purposes of this act may be accepted as a donation, or may be appropriated from the general fund, or may be raised by taxation, or by the issue and sale of the bonds of the municipality, or by any or all of such methods. Bonds may be issued and sold by any such city, as bonds are now issued and sold for the purpose of procuring money to be used in the legitimate exercise of the corporate powers of such city. Any city of the State of Indiana is hereby authorized through its proper officers, from time to time, to make such levies as may be necessary to produce a fund for any or all purposes of this act, including the payment and retirement of any bonds therefor issued and sold, and the payment of the interest thereon, and to collect the same as other taxes are collected.

Although the city of Lafayette had a population of only about 25,000 in 1926, the program undertaken by the local officials at that time clearly indicates the farsightedness with which they acted.

#### KANSAS LAW HELD UNCONSTITUTIONAL

Ten years later, the city of Kansas City, Kans., had a more difficult problem. The city council sought in 1936 to condemn lands for five public off-street free-parking facilities in the business section of the city by passing an ordinance for that purpose. The action was contested in court by several landowners who raised a number of objections to the measure. Some of these objections, local or procedural in nature, are not covered in this report. However, the case should be of interest to planning officials of other cities because they may find that the facts in it are very similar to those in their own communities. The pertinent points of the case to be considered here are the landowners' contentions (1) that the city had no statutory authority to condemn property for free-parking places; and (2) that the city was attempting, by eminent domain, to take private property for the benefit of private parties—the

businessmen—and not for the benefit of the city at large. The city in reply to these objections relied on a State law which reads as follows:<sup>6</sup>

Whenever it shall be deemed necessary by any governing body of any city to appropriate private property for the opening, widening, or extending any street or alley, or to condemn private property or easement therein for the use of the city for any purpose whatsoever, the governing body shall cause a survey and description of the land or easement so required to be made by some competent engineer and file with the city clerk. And thereupon the governing body shall make an order setting forth such condemnation and for what purpose the same is to be used. If in the opinion of the governing body any property is specially benefited by the proposed improvement such property shall be designated as the benefit district and the same shall be fixed by ordinance. The governing body, as soon as practicable after making the order declaring the appropriation of such land necessary and the fixing of the benefit district, if any is fixed, shall present a written application to the judge of the district court of the county in which said land is situated describing the land sought to be taken and setting forth the land necessary for the use of the city and setting out the benefit district in full and praying for the appointment of three commissioners to make an appraisal and assessment of the damages therefor.

In considering the first objection and construing the words "for any purpose whatsoever," the Supreme Court of Kansas said:<sup>7</sup>

This is a procedural statute. It is not one designating purposes for which private property may be taken by eminent domain. By the use of this phrase the Legislature never intended to do away with the well-settled rule that the Government takes private property by eminent domain only for a public use. The phrase should be interpreted as though it read, "for any purpose whatsoever for which a city is authorized to take private property for public use." We are cited to no statute, and our own research discloses none, which specifically, or by necessary implication, authorizes the city to condemn lots or blocks for automobile parking places.

In discussing the second objection, the court added:

The commissioners appointed by the court found that the city at large was not benefited by the establishment of these parking places, and this report was approved by the city commissioners. \* \* \* This gives color and force to the plaintiffs' allegations that the project was for the benefit of private parties and that it never was regarded by the defendant city or its officers as of a public necessity.

The city lost all issues raised in the case.

A short time before the court ruled on this case, the Kansas Legislature enacted a law which authorized cities of the first class having a population of 120,000 or more, to acquire by purchase, gift, or condemnation, lands for parking stations in or near commercial or industrial districts in such cities. The original act provided that no bonds could be issued for said purposes after January 1, 1940.<sup>8</sup> In a case decided April 8, 1939, the court held that said law was unconstitutional because it conferred special corporate powers, being applicable to only Kansas City. The court, having found a basis on which it could declare the law invalid, did not discuss other matters presented in the briefs.<sup>9</sup> This law was subsequently repealed.

#### COST OF PARKING FACILITIES ASSESSED TO BENEFIT DISTRICTS

The Kansas Legislature later enacted a law which authorized cities having a population between 60,000 and 100,000, in the discretion of the governing body, to acquire by purchase, gift, or condemnation, lands for public parking stations in or near commercial districts

<sup>4</sup> Baldwin's Indiana Statutes, Annotated, 1934, sec. 11472.

<sup>5</sup> Baldwin's Indiana Statutes, Annotated, 1934, sec. 11815. (Laws of 1927, ch. 15.) Sec. 11816 (sec. 2 of enactment) ratifies action previously taken by municipalities for public parking lots. For discussion of question see "Lafayette's Successful Efforts to Provide Free Municipal Parking Space," by A. R. Ross, *The American City*, May 1927, p. 631.

<sup>6</sup> General Statutes of Kansas, 1935, sec. 26-201.

<sup>7</sup> *Barker v. Kansas City*, 146 Kans. 347, 70 Pac. (2d) 5.

<sup>8</sup> 1939 Supplement to General Statutes of Kansas, 1935, sec. 13-1366 and 13-1367. (Laws of 1937, ch. 152; Laws of 1933, ch. 35; time limit repealed by Laws of 1939, ch. 108.)

<sup>9</sup> *Barker v. Kansas City*, 149 Kans. 696, 88 Pac. (2d) 1071.

of such cities, and to improve the same for such public parking stations.<sup>10</sup> It recently repealed this law and enacted a similar law affecting cities of the first class.<sup>11</sup>

The present Kansas law authorizes the establishment of benefit districts by ordinance and permits establishment of several parking stations in each benefit district. Not less than 75 percent nor more than 90 percent of the costs of the parking facilities are assessable to the benefit district in which said facilities are located. Costs of the improvement may be levied and assessed in not to exceed 10 installments, with interest on the amount remaining due and unpaid each year accruing at the rate of not exceeding 5 percent per annum. Landowners may pay the entire costs chargeable to their property within 30 days after the assessment ordinance is passed.

The governing body of the city is authorized to assess the pro rata cost of the condemnation and the improvement of the facilities against the privately owned property in the benefit district, and to levy the rest of the cost by a general tax on all the property in such city. Suits contesting the action taken by the city must be instituted and the summons served within 30 days from the publication of the ordinance levying the assessment. Municipal bonds may be issued and sold to pay the costs of such improvements. The bonds are payable in 10 equal annual installments and are to bear interest at not to exceed 5 percent per annum. Other features of this law are not pertinent to the present discussion.

The State of Maine has revised certain sections of its general laws to authorize municipal expenditures for public parking places. The sections, as amended, read as follows:<sup>12</sup>

Purposes for which money may be raised: The voters, at a legal town meeting, may raise the necessary sums for the support of schools and the poor; making and repairing highways, town ways, and bridges; and sprinkling streets; acquiring, improving and repairing land for use as public parking places for motor and other vehicles; acquiring by purchase or otherwise suitable sites, or suitable sites and buildings, or erecting buildings for free public libraries; repairing and constructing buildings for academies, seminaries or institutes with which the town has a contract as provided in section 92 of chapter 19; purchasing and fencing burying-grounds; maintaining private burying-grounds established before 1880; purchasing or building and repairing a hearse and hearse-house for the exclusive use of its citizens; and for other necessary town charges.

Towns may lay out land for public parking places; provision as to assessment of damages: Towns may lay out land within their corporate limits for use as public parking places for motor and other vehicles and may alter or discontinue such use. All procedure including assessment of damages and appeal therefrom shall be the same as is provided by general law for laying out, altering and discontinuing town ways. The words "town" and "towns" as used in this act shall include cities.

#### LEGAL AUTHORITY IN SEVERAL STATES OUTLINED

The State of Massachusetts has a law which reads, in part, as follows:<sup>13</sup>

A town may at any town meeting appropriate money for the following purposes: (33) For acquiring land for public parking places and maintaining the same.

The State of New Hampshire recently amended its laws to provide for public parking areas. The law in

question now reads, in part, as follows:<sup>14</sup>

Towns may at any legal meeting grant and vote such sums of money as they shall judge necessary for the following purposes: III. Highways. To lay out, build and repair highways, sidewalks, bridges and public parking places.

The provision of the West Virginia law on this subject is as follows:<sup>15</sup>

A city shall have power: (4) To establish, construct, maintain and operate markets, parks, recreation grounds, municipal camps, and parking lots, and upon the discontinuance thereof to sell and convey the same.

The Iowa law authorizes cities and towns to acquire by purchase, lease, or condemnation, real estate for parking purposes, and to pay the costs thereof either from the general fund or, if general funds are not available, from a parking lot tax fund which may be raised by taxation at the rate of not to exceed one-half mill in any fiscal year. The city council of any city is empowered to establish, maintain, and collect just and equitable charges for use of the parking lands; and the proceeds are to be used for the acquisition of other lands for the same purposes, while any surplus proceeds may be transferred to the general fund of the city. Authority to sell gasoline, oil, motor vehicle supplies, or other merchandise is expressly denied. The city may lease the enterprises to individuals or corporations for terms not exceeding 5 years, and under regulations determining the parking fees to be charged, or it may sell its interests in the property in such manner and under such terms as the council shall direct.<sup>16</sup>

The laws of the remaining two States—Michigan and Pennsylvania—authorize municipalities to engage in a large number of revenue-producing enterprises. The Michigan law, section 1, reads as follows:<sup>17</sup>

Any county, city, incorporated village, township, school district, port district, or metropolitan district, of the State of Michigan, is authorized to purchase, acquire or construct housing facilities, garbage, rubbish and/or sewage disposal plants and systems, water supply and/or water supply systems, incinerators, automobile parking facilities, public markets and storage facilities, merchandise marts, industrial marts, commercial marts, yacht basins, harbors, docks, wharves, terminal facilities, bridges over, tunnels under, ferries across rivers, streams and/or channels within or bounding such unit, community buildings, stadiums, convention halls and auditoriums, dormitories, hospitals, buildings devoted to public use, parks and recreational facilities, reforestation projects, aeronautic facilities and marine railways, either within or without the limits of such county, city, incorporated village, township, school district, port district or metropolitan district, and in furtherance thereof to purchase or construct any necessary part of any such project either within or without the limits of such county, city, incorporated village, township, school district, port district or metropolitan district, of the State of Michigan, which may now or hereafter own or operate any such project, is authorized to improve, enlarge, extend or repair the same: *Provided*, That nothing in this act shall be construed to authorize any county, city, incorporated village, township, school district, port district or metropolitan district to establish warehouses under the terms of this act for the purpose of storing or dispensing alcoholic beverages.

This law further provides that municipalities may operate these enterprises on a revenue-producing basis; and that they may issue bonds payable solely, both principal and interest, from the revenues derived.

In actual operation, the Pennsylvania law differs from the one in Michigan. It authorizes any county,

<sup>10</sup> 1939 Supplement to General Statutes of Kansas, 1935, sec. 13-1368. (Laws of 1939, ch. 124.)

<sup>11</sup> Senate Bill No. 227, approved April 1, 1941, effective April 3, 1941.

<sup>12</sup> Public Laws of Maine, 1941, ch. 149, approved April 4, 1941 (first paragraph amends ch. 5, sec. 78, and second paragraph adds sec. 24-A to ch. 27, of Revised Statutes of Maine, 1930).

<sup>13</sup> General Laws of Massachusetts 1932, ch. 40, sec. 5 (33). (Acts of 1926, ch. 116.)

<sup>14</sup> Public Laws of New Hampshire, 1926, ch. 42, sec. 4 (III), as amended by House Bill No. 52, Public Acts of New Hampshire, 1941, approved April 16, 1941, effective upon passage.

<sup>15</sup> Michie's West Virginia Code of 1937, sec. 591 (85). See Acts of West Virginia, 1937, ch. 56, for details.

<sup>16</sup> Senate Bill No. 293, Public Acts of Iowa, 1941, approved April 3, 1941.

<sup>17</sup> Public Acts of Michigan, 1933, Act No. 94, as amended by Public Acts of Michigan 1939, Acts Nos. 2 and 34.

city, town, borough, or township, individually or jointly with another municipality, to create by resolution or ordinance an authority for construction of, among other things, parking spaces. Said authority has a corporate existence for 50 years. It can sue and be sued; it can acquire property by lease, purchase, or condemnation; it can use said property to construct, improve, maintain, repair, and operate facilities; it can fix, alter, charge, and collect rates for use of its facilities; and it can borrow money and issue bonds to finance its operations. When any authority shall have paid all its obligations, it may convey all its property to the municipality and terminate its existence.<sup>15</sup>

SEVERAL BILLS CONCERNING PARKING BEING CONSIDERED BY STATE LEGISLATURES

Legislation on this question was introduced this year in Idaho<sup>19</sup> and New Mexico<sup>20</sup> but failed of enactment. At the time this report was prepared, five bills on this subject were being considered by the Illinois Legislature<sup>21</sup> and one by the Massachusetts Legislature.<sup>22</sup>

The bills before the Illinois Legislature vary in scope. Senate Bill No. 181 would authorize cities having a population of 150,000 or more, upon approval of the electorate, to establish parking places for motor vehicles within 400 feet of a municipal airport and to finance the same by revenue bonds. House Bill No. 337 would authorize all cities and towns, individually or jointly, to establish parking lots within or without their corporate limits. It also would authorize financing by sale of revenue bonds.

Senate Bill No. 580 would authorize park districts to acquire by gift, lease, or permit, land for use as parking lots, and to place permanent structures thereon. Senate Bill No. 581 would permit any city having a population between 5,000 and 100,000 to expend not to exceed 20 percent of a special tax fund for leasing, improving, and maintaining tracts of land and town lots as parking lots. House Bill No. 69 would authorize the creation of highway authorities, in counties with a population exceeding 300,000, which would be granted broad powers in the construction and operation of toll highway facilities, including "any facility intended for the accommodation of parking vehicles." This bill also contains a legislative declaration of public interest.

The Massachusetts bill would give the mayor of Boston broad powers for use in solving that municipality's parking problems. It would authorize him to appoint a department, board, commission, or official as an authority to exercise, subject to the approval of the mayor, the powers granted under the act. The authority would be empowered to purchase, condemn, or otherwise acquire land for parking facilities; to operate the same, or to license or lease them to individuals; to establish the rates to be charged for use of the facilities; to revise the rates whenever necessary so that the lowest possible charge would cover the cost of operation, maintenance, and administration, as well as meet the payment of principal and interest of any debt incurred by the city for such enterprises.

The bill would also authorize rate differentials due to such causes as the location of the facility and the size of the space occupied. The city treasurer, subject to

the approval of the mayor, would be authorized to issue and sell at public or private sale serial bonds of the city to an amount not exceeding \$6,000,000 in aggregate principal; said indebtedness would be outside the statutory limit of indebtedness of such city, and payment of the bonds would be made within 20 years.

Although some of the detailed provisions of this bill, particularly the one relating to the financing of these enterprises, apparently would not meet the constitutional inhibitions on municipal corporations in other States, the proposed measure is of utmost importance in this field because it contains a provision which, if enacted, would establish legislative recognition of the automobile parking facility as a public use. That provision, found in section 1 of bill, reads as follows:

It is hereby declared that the free circulation of traffic of all kinds through the streets of the city of Boston is necessary to the health, safety, and general welfare of the public, whether residing in said city or travelling to, through or from said city in the course of lawful pursuits; that in recent years the greatly increased use by the public of motor vehicles of all kinds has caused serious traffic congestion in the streets of the city of Boston; that the parking of motor vehicles in the streets of the city of Boston has contributed to this congestion to such an extent as to constitute at the present time a public nuisance; that such parking prevents the free circulation of traffic in, through, and from said city, impedes the rapid and effective fighting of fires and disposition of police forces in said city, threatens irreparable loss in valuations of city property which can no longer be readily reached by vehicular traffic, and endangers the health, safety, and welfare of the general public; that this parking nuisance is not capable of being adequately abated except by provision of sufficient off-street parking facilities, conveniently located in the several commercial and residential districts of the city; that adequate off-street parking facilities have not been provided by private capital and private parking spaces now existing must be forthwith supplemented by off-street parking facilities provided by public undertaking; and that the enactment of sections two to eight of this act, inclusive is hereby declared to be a public necessity.

MUNICIPAL PARKING FACILITIES MUST COME WITHIN CONCEPT OF A PUBLIC USE

Developments in Cleveland, Ohio, several years ago seem to have some significance with respect to this question. It appears that between June 1933 and January 1935, excepting for a total of about 3 months time when the property was used for 11 major events or exhibits, the city had used an underground exhibition hall in its civic center as a garage in competition with private garages, and had permitted the parking and storing of automobiles for the general public. A neighboring garageman filed suit to enjoin the city from operating the exhibition hall as a garage. In referring to a municipal ordinance and the provisions of a lease between the city and the Cuyahoga County Commissioners relating to the intended use of this property, the Ohio Supreme Court said:<sup>23</sup>

"In the instant case the municipal legislation for acquiring the land and erecting the underground structure expressly provides that the purpose is to be a public one, and that the space is to be used for "storage, garage or other public purpose, and for all uses incidental thereto." Manifestly had the express purpose been to maintain and operate a private competitive garage, the proposal would have been extra-legal from the beginning. To engage in private, competitive business is to go beyond the purpose for which the underground exhibition hall was constructed, as expressed in the legislation therefor.

It is true that in many instances it has been held that public buildings may be temporarily let for a consideration, but in our judgment the present case does not present a situation of that character. Here we are concerned not with a temporary leasing of a public building, but with one which is used at times for purely public functions and at other times, and by far the

<sup>15</sup> Laws of Pennsylvania, 1935, Act No. 191 (Purdon's Pennsylvania Statutes, 1936, Title 53, secs. 2900f to 2900w), as amended by Laws of 1937, Act No. 200, and Laws of 1939, Act No. 85.

<sup>19</sup> Idaho, 1941, House Bill No. 111.

<sup>20</sup> New Mexico, 1941, House Bill No. 150.

<sup>21</sup> Illinois, 1941, House Bills Nos. 69, and 337, and Senate Bills Nos. 181 (a substitute for Senate Bill No. 121), 580, and 581.

<sup>22</sup> Massachusetts, 1941, House Bill No. 1636.

<sup>23</sup> *Cleveland v. Ruple*, 130 Ohio St. 465, 200 N. E. 507, 103 A. L. R. 853.

larger part of the time, for engaging in a private garage business in direct competition with privately owned and operated garages in the vicinity, including that which plaintiff below operated as receiver.

#### The court held:

The building may be operated as a garage so far as in doing so there is involved a public function. \* \* \* To be specific, whenever the public buildings of entertainment located in the civic center, to wit, the underground exhibition hall itself, the public hall, or the stadium, are used properly and lawfully for public gatherings, patrons in attendance thereat may use the underground exhibition hall for parking or storing automobiles, for hire or otherwise. The city may permit its officers and employees to park or store their automobiles in the underground exhibition hall while they are engaged in the performance of duties as such officers and employees, but subject to the terms prescribed by the city. The city of Cleveland may use the premises for the parking, storing, washing, oiling, lubricating, repairing, and otherwise servicing its own automobiles, trucks, busses and other vehicles. Should any purely public purpose for which the building may be used arise in the future, such a use is not prohibited.

On the other hand, the defendants in the court below are enjoined from operating the garage as a purely private business in competition with privately owned garages.

Municipalities planning to establish public parking facilities may find it very helpful if they would carefully check the sources of their power before condemning or purchasing the desired lands, or before converting lands acquired by tax delinquencies or for other public uses into public parking places. Although these sources of power vary in the different States, they may be found in the State constitutions, municipal charters, and the general or special acts of the State legislature. It should be remembered when these studies are made that courts are inclined to construe grants of power strictly against the municipality, and that they limit implied powers to only those which are necessarily incidental to an express power. In other words, the courts in construing a State law authorizing its municipalities only to construct a public parking lot would not necessarily imply that they could charge fees for use of the same, or that they could issue bonds to finance the construction costs.

It might be well to review the decisions of the local courts interpreting these grants of municipal power, or the decisions of the courts of other States interpreting similar provisions of law. In the event that a municipality has no express power under which it can undertake the program that its planning officials desire, it should secure enactment of a State law to cover the situation. A general law, enacted at the request of a number of communities which base their recommendations upon the reports of their planning officials showing the urgent need for remedial measures, would prove most desirable. The detailed provisions should be expressly stated in the law.

#### LEGISLATIVE RECOGNITION AND ACTION NEEDED TO SOLVE PROBLEM

The city-owned parking facility question has not been reviewed by the courts to any great extent because the trend toward such enterprises is a very recent development. Since many of the municipal undertakings currently operating in a number of cities throughout the country require only small cash outlays from public funds and are on lands which have been acquired by means other than through condemnation proceedings, the interests of the taxpayer, and of the owner of property sought to be condemned, have not yet been aroused sufficiently to have the program subjected to judicial scrutiny. Therefore, the real issue—the public nature of the automobile parking facility—is still a moot question which only the courts can answer. Each case in

which this issue is raised, of course, will be decided on its own merits.

This question is of utmost importance, particularly since (1) the most suitable locations in many cities for public parking facilities often can be acquired by the municipality at a reasonable cost only by the exercise of eminent domain powers; (2) private property may not be taken from the owner against his will for other than a public use; and (3) public funds may not be expended for private purposes.

City planning officials can do much to strengthen their claim of public necessity for municipally owned and operated enterprises in this field by careful planning of the entire record on which they base their claims. They can go beyond enactment of a State law which merely authorizes them, among other things, to condemn lands for such purposes. Such a law may prove inadequate when the case testing their action is heard in court. Measures far more effective than the mere enactment of a law can be taken. They are, of course, detailed steps which the various municipalities of a State interested in the movement should consider before any one of them seeks State legislation on the question. A municipality of a State which can enact special laws may desire to present its own problems to the State legislature and request enactment of a law which would apply only to that one city.

Properly prepared reports showing analogous conditions in several communities within the same State, or within one community of a State in which special legislation is constitutionally proper, and used as the basis for State legislation, can provide means by which the legislature may make findings relating to existent urban traffic conditions as well as the determination of public necessity for municipally owned parking facilities. Such findings and the determination of public necessity are proposed specifically for municipally owned parking places in the bill being considered by the Massachusetts legislature. Since these findings and determinations relate to public conditions concerning which the State legislature by necessity and duty must know, they are usually given great respect by the courts, even though the courts are not required to accept them as conclusive.

The record can be so developed that it may be possible for a municipality to allege in its court pleadings all the conditions adverted to by the legislature, and actually to prove the existence of those conditions during the trial. The added weight of the legislative findings and the determination of public necessity, coupled with the allegation and proof of the existent conditions, may be sufficient to sway an otherwise doubtful court toward the favorable side of the continuously growing public concept that an automobile parking facility is a "public use."

The developments which already have taken place in the form of State legislation and municipal action definitely show a tendency on the part of the legislative and executive branches of State and local governmental units to recognize the automobile parking facility as a public use. The increased interest in this field which may be expected throughout the country within the next few years will further strengthen the public use concept of such enterprise. This trend should help to obtain favorable court decisions on the issues of properly developed cases. In the meantime, municipal planners should recognize that the legal phases of the publicly owned parking facility are no less important than plans for the physical layout and financing. The groundwork laid today will influence the judicial determinations of tomorrow.

(Continued from page 112)

ment to provide such facilities for self-preservation, and most large stores now generally insist upon parking space at least equal to total floor space.

Other means of relieving urban street congestion are zoning ordinances which designate permissible land uses or which limit the intensity of land use by fixing the maximum height and bulk of buildings.<sup>14</sup> Employment of these instruments of planning, it is true, may not yield any immediate relief in downtown areas, but the fact that cities are practically rebuilt every generation suggests the merit of planning now for a wise reconstruction.

#### CONCLUSIONS

Consideration of the parking requirements of the automobile and of the issues they involve has led to the conclusion that off-street parking facilities constitute an essential part of urban highway transportation service. This fact, together with the inability of private enterprise to supply a satisfactory solution, has established parking as a public responsibility and introduced into the field of highway finance extensive new factors involving the whole city problem. In view of the utter inadequacy of urban transportation in the United States at the present time, it is inconceivable that public officials can long continue to deny this responsibility.

Today the favorable cost conditions and financial methods possible under municipal operation of parking facilities are being realized in an increasing number of cities, and the growing magnitude of urban congestion is creating widespread interest in further municipal experiments. It is suggested that Federal assistance might be offered in the planning of parking facilities in connection with the highway program, and that actual sites might be made available through building demolitions by the Work Projects Administration. Financial aid in the provision of the new facilities or loans for land acquisitions are also possibilities for the future. At the same time there appears to be no logical objection to the broadening of the legal interpretation of highway service to permit the cities to use their allotments of State motor-vehicle tax revenues to finance off-street parking facilities. Intelligent surveys and enabling legislation, however, appear to be the most essential immediate steps, so that eventual return to a peacetime economy may find in readiness bold plans for a large-scale program of public works designed to rescue the city from its present plight.

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## BULLETIN ON SOIL MECHANICS AVAILABLE

"Plane Strain Distribution of Stress in Elastic Media" has recently been published as Iowa State College Bulletin No. 148.

This 56-page bulletin presents an analysis of stresses and displacements in a semi-infinite elastic medium. Its practical application is in soil mechanics. The analysis approximates the condition present when an earth fill or highway embankment is placed on level or sloping ground.

A limited number of copies of Bulletin 148 are available for free distribution and may be obtained from the Iowa Engineering Experiment Station, Iowa State College, Ames, Iowa.

## CORRECTION

In figure 16, page 89, of the June 1941 issue of PUBLIC ROADS, Item 1 should read "Percentage of Federal-aid Apportionments, 1941." It was incorrectly labeled "Percentage of total area."

STATUS OF FEDERAL-AID HIGHWAY PROJECTS

AS OF JUNE 30, 1941

| STATE                | COMPLETED DURING CURRENT FISCAL YEAR |                    |                | UNDER CONSTRUCTION   |                    |                | APPROVED FOR CONSTRUCTION |                   |                | BALANCE OF FUNDS AVAILABLE (GRAMMED PROJECTS) |
|----------------------|--------------------------------------|--------------------|----------------|----------------------|--------------------|----------------|---------------------------|-------------------|----------------|---|
|                      | Estimated Total Cost                 | Federal Aid        | Miles          | Estimated Total Cost | Federal Aid        | Miles          | Estimated Total Cost      | Federal Aid       | Miles          |   |
| Alabama              | \$ 4,827,329                         | \$ 2,266,382       | 122.1          | \$ 6,370,806         | \$ 3,161,345       | 221.9          | \$ 2,188,500              | \$ 1,088,350      | 60.1           | \$ 1,813,660                                  |
| Arizona              | 1,776,383                            | 1,216,648          | 70.0           | 1,604,155            | 1,119,247          | 71.3           | 386,532                   | 265,870           | 8.6            | 1,478,816                                     |
| Arkansas             | 5,246,519                            | 2,403,405          | 137.2          | 1,423,458            | 709,959            | 57.9           | 562,452                   | 281,069           | 1.6            | 1,360,557                                     |
| California           | 7,669,676                            | 3,862,136          | 143.8          | 8,754,615            | 4,723,774          | 122.8          | 2,851,722                 | 1,489,036         | 56.6           | 2,694,814                                     |
| Colorado             | 2,822,156                            | 1,532,734          | 220.0          | 2,375,049            | 1,316,969          | 95.4           | 921,087                   | 519,832           | 69.5           | 2,690,469                                     |
| Connecticut          | 1,952,524                            | 942,967            | 16.2           | 2,052,068            | 990,677            | 23.9           | 854,172                   | 275,508           | 8.1            | 973,057                                       |
| Delaware             | 2,010,443                            | 1,004,442          | 32.5           | 328,389              | 163,920            | 5.0            | 817,812                   | 400,879           | 23.4           | 1,035,973                                     |
| Florida              | 3,691,978                            | 1,833,430          | 85.5           | 1,115,428            | 585,805            | 57.8           | 1,956,762                 | 946,540           | 16.6           | 2,799,339                                     |
| Georgia              | 3,703,811                            | 1,797,726          | 212.7          | 7,105,429            | 3,582,964          | 270.0          | 5,248,992                 | 2,624,496         | 286.2          | 4,888,345                                     |
| Idaho                | 2,296,691                            | 1,303,593          | 161.7          | 1,686,903            | 1,018,103          | 81.7           | 532,633                   | 284,944           | 26.8           | 1,558,916                                     |
| Illinois             | 8,234,831                            | 4,022,451          | 188.9          | 8,183,346            | 4,092,423          | 165.3          | 2,722,252                 | 1,375,570         | 30.1           | 3,838,477                                     |
| Indiana              | 6,351,009                            | 3,129,356          | 136.6          | 8,349,719            | 4,210,725          | 134.6          | 1,524,766                 | 43,183            | 1.5            | 2,191,656                                     |
| Iowa                 | 7,550,985                            | 3,555,970          | 280.1          | 3,602,738            | 1,722,208          | 133.1          | 3,208,052                 | 1,517,750         | 116.4          | 505,647                                       |
| Kansas               | 6,483,589                            | 3,079,023          | 530.9          | 5,596,548            | 2,840,341          | 287.2          | 3,175,123                 | 1,576,487         | 167.5          | 3,836,234                                     |
| Kentucky             | 3,384,253                            | 1,666,719          | 101.9          | 4,923,180            | 2,396,687          | 121.4          | 4,453,360                 | 2,133,989         | 129.8          | 1,487,778                                     |
| Louisiana            | 2,970,570                            | 2,970,570          | 39.4           | 2,375,813            | 1,187,146          | 55.4           | 3,023,507                 | 1,478,882         | 63.1           | 3,032,294                                     |
| Maine                | 1,408,282                            | 688,019            | 31.8           | 1,680,458            | 861,953            | 23.0           | 917,540                   | 458,770           | 18.5           | 501,998                                       |
| Maryland             | 1,495,568                            | 736,317            | 31.0           | 3,740,235            | 1,859,013          | 28.1           | 1,058,128                 | 458,666           | 6.2            | 1,627,639                                     |
| Massachusetts        | 1,835,469                            | 914,827            | 22.9           | 3,603,415            | 1,822,083          | 24.3           | 1,631,409                 | 811,216           | 12.9           | 2,812,396                                     |
| Michigan             | 7,684,964                            | 3,572,921          | 542.3          | 8,357,520            | 4,156,160          | 177.0          | 745,000                   | 372,500           | 12.0           | 2,287,348                                     |
| Minnesota            | 6,542,656                            | 3,149,718          | 242.3          | 7,592,677            | 3,779,119          | 396.3          | 4,146,620                 | 2,049,484         | 219.2          | 2,035,192                                     |
| Mississippi          | 3,678,421                            | 1,744,146          | 163.0          | 8,069,112            | 3,969,706          | 452.1          | 530,100                   | 263,300           | 27.4           | 949,308                                       |
| Missouri             | 4,700,060                            | 2,236,509          | 229.3          | 10,458,355           | 5,059,081          | 241.6          | 5,718,000                 | 2,117,611         | 134.0          | 3,193,079                                     |
| Montana              | 3,022,372                            | 2,841,537          | 337.3          | 3,210,474            | 1,817,945          | 154.9          | 286,871                   | 153,115           | 26.6           | 1,059,200                                     |
| Nebbraska            | 4,942,017                            | 2,303,138          | 565.8          | 4,739,551            | 2,389,803          | 525.0          | 3,048,518                 | 1,524,259         | 298.2          | 2,656,533                                     |
| Nevada               | 1,589,675                            | 1,379,934          | 79.6           | 2,226,708            | 1,937,148          | 102.9          | 571,653                   | 413,018           | 23.6           | 582,964                                       |
| New Hampshire        | 1,712,063                            | 842,469            | 43.5           | 771,073              | 384,261            | 11.1           | 449,656                   | 216,604           | 6.0            | 885,973                                       |
| New Jersey           | 3,209,169                            | 1,589,352          | 21.3           | 5,888,682            | 2,944,261          | 42.8           | 27,110                    | 13,555            | 1.7            | 1,741,492                                     |
| New Mexico           | 2,573,097                            | 1,603,375          | 215.6          | 1,221,885            | 751,631            | 51.5           | 513,106                   | 331,774           | 54.4           | 1,892,356                                     |
| New York             | 11,945,473                           | 5,175,856          | 204.9          | 12,217,592           | 6,081,600          | 155.6          | 900,080                   | 399,390           | 11.7           | 4,235,274                                     |
| North Carolina       | 5,988,295                            | 2,991,393          | 294.7          | 4,609,534            | 2,300,755          | 195.4          | 592,500                   | 268,740           | 26.4           | 2,629,185                                     |
| North Dakota         | 2,530,261                            | 1,333,272          | 255.0          | 3,949,940            | 2,185,535          | 314.5          | 1,782,737                 | 308.4             | 3.0            | 3,115,042                                     |
| Ohio                 | 7,744,295                            | 3,844,249          | 95.1           | 17,458,700           | 8,577,798          | 143.5          | 2,489,722                 | 1,051,230         | 19.6           | 2,587,350                                     |
| Oklahoma             | 3,603,840                            | 1,903,220          | 170.6          | 3,423,074            | 1,769,597          | 105.2          | 2,834,320                 | 1,451,657         | 95.8           | 4,263,768                                     |
| Oregon               | 3,704,576                            | 2,213,601          | 168.2          | 4,128,063            | 2,226,236          | 106.5          | 922,275                   | 512,240           | 13.1           | 743,292                                       |
| Pennsylvania         | 8,950,104                            | 4,440,982          | 106.6          | 13,624,954           | 6,706,878          | 116.3          | 2,884,024                 | 1,392,419         | 27.9           | 2,823,374                                     |
| Rhode Island         | 1,377,507                            | 673,905            | 13.0           | 1,117,614            | 558,172            | 10.3           | 230,390                   | 115,195           | 1.6            | 1,019,872                                     |
| South Carolina       | 2,664,734                            | 1,288,098          | 190.2          | 4,337,147            | 1,992,844          | 158.7          | 419,263                   | 170,226           | 19.1           | 1,967,991                                     |
| South Dakota         | 3,689,420                            | 2,084,433          | 638.6          | 4,467,683            | 2,765,223          | 523.2          | 1,137,360                 | 652,140           | 136.9          | 2,718,059                                     |
| Tennessee            | 4,131,091                            | 2,049,708          | 102.0          | 5,523,448            | 2,761,724          | 131.9          | 922,208                   | 461,104           | 14.4           | 3,427,714                                     |
| Texas                | 10,045,404                           | 4,881,747          | 570.0          | 14,682,580           | 7,255,994          | 635.8          | 2,961,778                 | 1,413,775         | 121.7          | 6,260,955                                     |
| Utah                 | 1,275,905                            | 913,601            | 82.3           | 2,125,922            | 1,050,123          | 61.1           | 398,236                   | 239,439           | 15.3           | 641,843                                       |
| Vermont              | 1,489,949                            | 709,384            | 44.8           | 911,538              | 462,046            | 24.6           | 809,403                   | 400,051           | 13.8           | 199,957                                       |
| Virginia             | 3,292,235                            | 1,561,634          | 84.2           | 4,435,323            | 2,072,998          | 71.5           | 1,527,926                 | 715,603           | 36.9           | 1,770,335                                     |
| Washington           | 4,502,460                            | 2,313,802          | 91.4           | 1,954,491            | 1,043,494          | 23.8           | 1,492,118                 | 756,985           | 26.2           | 1,116,847                                     |
| West Virginia        | 2,607,727                            | 1,291,446          | 94.3           | 3,822,330            | 1,905,976          | 62.8           | 550,400                   | 273,385           | 9.6            | 1,646,733                                     |
| Wisconsin            | 5,837,466                            | 2,864,625          | 204.2          | 3,556,123            | 1,766,988          | 130.2          | 1,581,967                 | 727,820           | 65.5           | 4,040,635                                     |
| Wyoming              | 2,192,003                            | 1,350,061          | 235.9          | 1,452,036            | 948,842            | 141.1          | 353,577                   | 204,368           | 31.0           | 1,197,638                                     |
| District of Columbia | 674,267                              | 336,821            | 6.0            | 789,420              | 393,940            | 2.2            | 134,657                   | 67,250            | .5             | 420,250                                       |
| Hawaii               | 338,503                              | 167,392            | 6.0            | 546,698              | 292,545            | 7.8            | 296,658                   | 277,186           | 3.2            | 1,716,101                                     |
| Puerto Rico          | 865,208                              | 412,985            | 19.4           | 1,455,652            | 719,875            | 16.2           | 267,936                   | 131,600           | 2.1            | 805,679                                       |
| <b>TOTALS</b>        | <b>216,043,485</b>                   | <b>105,721,229</b> | <b>8,708.7</b> | <b>237,974,922</b>   | <b>121,673,642</b> | <b>7,273.5</b> | <b>79,657,033</b>         | <b>38,978,676</b> | <b>2,831.2</b> | <b>111,468,264</b>                            |

STATUS OF FEDERAL-AID SECONDARY OR FEEDER ROAD PROJECTS

AS OF JUNE 30, 1941

| STATE                | COMPLETED DURING CURRENT FISCAL YEAR |             |         | UNDER CONSTRUCTION   |             |         | APPROVED FOR CONSTRUCTION |             |         | BALANCE OF PROJECT AVAILABLE FOR PROCEEDING UNLESS GRANTED PROL. EXT. |
|----------------------|--------------------------------------|-------------|---------|----------------------|-------------|---------|---------------------------|-------------|---------|---|
|                      | Estimated Total Cost                 | Federal Aid | Miles   | Estimated Total Cost | Federal Aid | Miles   | Estimated Total Cost      | Federal Aid | Miles   |   |
| Alabama              | \$ 201,544                           | \$ 100,563  | 10.3    | \$ 1,322,457         | \$ 662,456  | 59.8    | \$ 438,900                | \$ 213,730  | 29.0    | \$ 414,624  |
| Arizona              | 239,793                              | 167,992     | 23.6    | 202,398              | 149,241     | 5.3     | 53,969                    | 39,230      | 8.7     | 359,011   |
| Arkansas             | 463,572                              | 202,807     | 44.9    | 412,654              | 205,474     | 32.6    |                           |             |         | 305,298   |
| California           | 1,080,315                            | 587,266     | 40.5    | 1,431,118            | 966,148     | 21.5    | 182,486                   | 102,820     | 4.4     | 472,613   |
| Colorado             | 354,364                              | 198,516     | 17.7    | 151,590              | 75,247      | 20.7    | 67,508                    | 109,263     | 1.9     | 310,021   |
| Connecticut          | 370,531                              | 179,413     | 4.6     | 298,035              | 136,331     | 6.1     | 249,242                   | 145,826     | 4.8     | 78,566  |
| Delaware             | 167,624                              | 83,378      | 15.5    | 89,307               | 44,179      | 4.4     | 319,569                   | 145,826     | 15.8    | 158,438   |
| Florida              | 118,332                              | 58,758      | 10.0    | 1,077,958            | 538,529     | 10.5    | 67,314                    | 33,557      | 1.3     | 248,030   |
| Georgia              | 347,056                              | 172,409     | 39.6    | 934,746              | 517,423     | 59.3    | 1,050,897                 | 525,448     | 102.6   | 787,094   |
| Idaho                | 171,420                              | 101,343     | 24.2    | 290,633              | 175,671     | 19.2    | 40,937                    | 7,402       | 1.2     | 237,955   |
| Illinois             | 1,909,326                            | 884,983     | 81.9    | 1,380,450            | 669,625     | 63.6    | 516,900                   | 258,450     | 24.1    | 412,738   |
| Indiana              | 471,760                              | 222,327     | 31.0    | 865,164              | 438,039     | 52.5    | 868,200                   | 392,316     | 34.0    | 604,775   |
| Iowa                 | 2,385,177                            | 1,229,520   | 59.5    | 545,667              | 246,923     | 136.8   | 121,203                   | 44,025      | 21.1    | 466,690   |
| Kansas               | 489,457                              | 244,055     | 58.3    | 1,036,939            | 526,640     | 49.1    | 1,632,975                 | 813,992     | 167.3   | 696,878   |
| Kentucky             | 934,599                              | 303,935     | 69.6    | 677,428              | 199,427     | 29.2    | 1,080,987                 | 265,885     | 78.2    | 295,013   |
| Louisiana            | 112,966                              | 52,661      | 10.9    | 564,708              | 230,289     | 20.6    | 289,362                   | 138,761     | 21.5    | 446,100   |
| Maine                | 330,551                              | 152,283     | 17.7    | 14,200               | 7,100       | 8       |                           |             |         | 161,212   |
| Maryland             | 128,300                              | 64,150      | 5.5     | 449,390              | 224,695     | 17.3    | 352,610                   | 176,130     | 5.2     | 199,221   |
| Massachusetts        | 537,358                              | 266,367     | 10.5    | 336,366              | 178,602     | 7.8     | 464,750                   | 231,510     | 6.4     | 306,739   |
| Michigan             | 1,621,562                            | 796,518     | 134.9   | 1,116,860            | 558,430     | 61.0    | 487,500                   | 243,690     | 30.7    | 443,946   |
| Minnesota            | 1,065,399                            | 517,902     | 161.3   | 1,067,230            | 542,865     | 118.1   | 741,473                   | 369,294     | 102.8   | 643,574   |
| Mississippi          | 278,087                              | 137,780     | 12.5    | 1,134,994            | 557,312     | 61.3    | 233,261                   | 116,631     | 7.9     | 535,242   |
| Montana              | 871,518                              | 431,253     | 115.6   | 461,040              | 217,937     | 30.8    | 475,672                   | 190,553     | 66.6    | 842,757   |
| Nebraska             | 908,856                              | 513,440     | 129.7   | 362,875              | 203,169     | 37.8    | 103,169                   | 58,594      | 23.2    | 633,341   |
| Nevada               | 757,643                              | 361,916     | 122.8   | 610,265              | 306,410     | 59.8    | 170,793                   | 85,397      | 30.6    | 383,988   |
| New Hampshire        | 269,855                              | 223,012     | 47.7    | 122,442              | 106,515     | 12.8    | 126,764                   | 110,157     | 9.5     | 117,668   |
| New Jersey           | 143,639                              | 68,883      | 3.4     | 159,106              | 76,532      | 4.7     | 187,417                   | 92,808      | 3.5     | 88,885  |
| New Mexico           | 402,862                              | 203,795     | 15.3    | 366,642              | 194,835     | 7.8     | 604,560                   | 298,145     | 20.6    | 348,764   |
| New York             | 565,083                              | 289,531     | 31.8    | 426,456              | 268,847     | 42.6    | 335,000                   | 146,500     | 4.9     | 219,827   |
| North Carolina       | 2,471,956                            | 1,175,210   | 80.5    | 1,124,234            | 585,815     | 27.9    | 261,048                   | 98,960      | 22.1    | 650,421   |
| North Dakota         | 1,134,809                            | 564,109     | 105.7   | 521,179              | 265,168     | 41.7    | 808,050                   | 793,860     | 42.7    | 368,727   |
| Ohio                 | 87,156                               | 87,156      | 1.4     | 52,986               | 29,992      | 2.4     | 608,050                   | 250,125     | 6.1     | 483,046   |
| Oklahoma             | 416,089                              | 416,089     | 66.2    | 1,884,110            | 979,150     | 58.6    | 248,546                   | 148,200     | 25.2    | 927,098   |
| Rhode Island         | 435,623                              | 244,446     | 67.1    | 382,826              | 191,561     | 21.6    | 856,486                   | 452,224     | 64.6    | 740,704   |
| South Carolina       | 885,463                              | 885,463     | 62.5    | 2,347,095            | 1,162,481   | 45.1    | 248,573                   | 148,200     | 25.2    | 226,979   |
| South Dakota         | 1,806,155                            | 120,687     | 3.6     | 211,098              | 108,991     | 2.6     | 162,000                   | 81,000      | 2.9     | 41,113  |
| Tennessee            | 671,637                              | 246,116     | 97.8    | 644,667              | 249,166     | 43.6    | 3,920                     | 1,960       | 2.5     | 63,989  |
| Texas                | 5,714                                | 3,624       | 8.7     | 644,667              | 249,166     | 43.6    | 3,920                     | 1,960       | 2.5     | 159,848   |
| Utah                 | 150,805                              | 71,863      | 8.7     | 551,006              | 275,503     | 9.0     | 3,920                     | 1,960       | 2.5     | 489,674   |
| Vermont              | 1,644,276                            | 804,137     | 214.4   | 1,153,216            | 563,173     | 17.7    | 1,333,078                 | 666,539     | 46.9    | 437,708   |
| Virginia             | 207,897                              | 130,260     | 27.6    | 231,700              | 147,199     | 113.3   | 457,195                   | 215,875     | 41.0    | 1,362,440   |
| Washington           | 477,095                              | 152,849     | 19.4    | 36,219               | 18,109      | 15.8    | 17,494                    | 8,984       | 3.7     | 208,507   |
| West Virginia        | 528,246                              | 248,088     | 28.3    | 505,941              | 241,332     | 17.6    | 202,000                   | 82,152      | 2.5     | 91,346  |
| Wisconsin            | 715,902                              | 365,694     | 38.7    | 420,865              | 244,139     | 20.3    | 82,147                    | 9,000       | 1.1     | 383,566   |
| Wyoming              | 334,593                              | 165,602     | 18.5    | 537,890              | 268,945     | 20.3    | 166,434                   | 82,604      | 5.8     | 320,571   |
| District of Columbia | 454,409                              | 225,949     | 10.0    | 1,080,995            | 546,013     | 44.8    | 991,668                   | 413,110     | 38.3    | 358,043   |
| Hawaii               | 431,815                              | 260,037     | 42.8    | 369,790              | 199,928     | 18.8    | 214,231                   | 68,100      | 20.0    | 150,012   |
| Puerto Rico          | 112,164                              | 56,082      | 1.4     | 58,203               | 29,096      | 6       | 30,529                    | 14,750      | 3       | 73,194  |
| TOTALS               | 33,071,418                           | 16,176,341  | 2,824.4 | 30,663,158           | 15,640,066  | 1,617.3 | 19,148,761                | 9,804,717   | 1,286.3 | 19,458,918  |



# *PUBLICATIONS of the PUBLIC ROADS ADMINISTRATION*

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Any of the following publications may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. As his office is not connected with the Agency and as the Agency does not sell publications, please send no remittance to the Federal Works Agency.

## *ANNUAL REPORTS*

- Report of the Chief of the Bureau of Public Roads, 1931. 10 cents.  
Report of the Chief of the Bureau of Public Roads, 1932. 5 cents.  
Report of the Chief of the Bureau of Public Roads, 1933. 5 cents.  
Report of the Chief of the Bureau of Public Roads, 1934. 10 cents.  
Report of the Chief of the Bureau of Public Roads, 1935. 5 cents.  
Report of the Chief of the Bureau of Public Roads, 1936. 10 cents.  
Report of the Chief of the Bureau of Public Roads, 1937. 10 cents.  
Report of the Chief of the Bureau of Public Roads, 1938. 10 cents.  
Report of the Chief of the Bureau of Public Roads, 1939. 10 cents.  
Work of the Public Roads Administration, 1940.

## *HOUSE DOCUMENT NO. 462*

- Part 1 . . . Nonuniformity of State Motor-Vehicle Traffic Laws. 15 cents.  
Part 2 . . . Skilled Investigation at the Scene of the Accident Needed to Develop Causes. 10 cents.  
Part 3 . . . Inadequacy of State Motor-Vehicle Accident Reporting. 10 cents.  
Part 4 . . . Official Inspection of Vehicles. 10 cents.  
Part 5 . . . Case Histories of Fatal Highway Accidents. 10 cents.  
Part 6 . . . The Accident-Prone Driver. 10 cents.

## *MISCELLANEOUS PUBLICATIONS*

- No. 76MP . . . The Results of Physical Tests of Road-Building Rock. 25 cents.  
No. 191MP . . . Roadside Improvement. 10 cents.  
No. 272MP . . . Construction of Private Driveways. 10 cents.  
No. 279MP . . . Bibliography on Highway Lighting. 5 cents.  
Highway Accidents. 10 cents.  
The Taxation of Motor Vehicles in 1932. 35 cents.  
Guides to Traffic Safety. 10 cents.  
An Economic and Statistical Analysis of Highway-Construction Expenditures. 15 cents.  
Highway Bond Calculations. 10 cents.  
Transition Curves for Highways. 60 cents.  
Highways of History. 25 cents.  
Specifications for Construction of Roads and Bridges in National Forests and National Parks. 1 dollar.

## *DEPARTMENT BULLETINS*

- No. 1279D . . . Rural Highway Mileage, Income, and Expenditures, 1921 and 1922. 15 cents.  
No. 1486D . . . Highway Bridge Location. 15 cents.

## *TECHNICAL BULLETINS*

- No. 55T . . . Highway Bridge Surveys. 20 cents.  
No. 265T . . . Electrical Equipment on Movable Bridges. 35 cents.

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Single copies of the following publications may be obtained from the Public Roads Administration upon request. They cannot be purchased from the Superintendent of Documents.

## *MISCELLANEOUS PUBLICATIONS*

- No. 296MP . . . Bibliography on Highway Safety.  
House Document No. 272 . . . Toll Roads and Free Roads.  
Indexes to PUBLIC ROADS, volumes 6-8 and 10-20, inclusive.

## *SEPARATE REPRINT FROM THE YEARBOOK*

- No. 1036Y . . . Road Work on Farm Outlets Needs Skill and Right Equipment.

## *TRANSPORTATION SURVEY REPORTS*

- Report of a Survey of Transportation on the State Highway System of Ohio (1927).  
Report of a Survey of Transportation on the State Highways of Vermont (1927).  
Report of a Survey of Transportation on the State Highways of New Hampshire (1927).  
Report of a Plan of Highway Improvement in the Regional Area of Cleveland, Ohio (1928).  
Report of a Survey of Transportation on the State Highways of Pennsylvania (1928).  
Report of a Survey of Traffic on the Federal-Aid Highway Systems of Eleven Western States (1930).

## *UNIFORM VEHICLE CODE*

- Act I.—Uniform Motor Vehicle Administration, Registration, Certificate of Title, and Antitheft Act.  
Act II.—Uniform Motor Vehicle Operators' and Chauffeurs' License Act.  
Act III.—Uniform Motor Vehicle Civil Liability Act.  
Act IV.—Uniform Motor Vehicle Safety Responsibility Act.  
Act V.—Uniform Act Regulating Traffic on Highways.  
Model Traffic Ordinances.

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A complete list of the publications of the Public Roads Administration, classified according to subject and including the more important articles in PUBLIC ROADS, may be obtained upon request addressed to Public Roads Administration, Willard Bldg., Washington, D. C.

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# STATUS OF FEDERAL-AID GRADE CROSSING PROJECTS

AS OF JUNE 30, 1941

| STATE                | COMPLETED DURING CURRENT FISCAL YEAR |                   |            |   | UNDER CONSTRUCTION   |                   |                   |   | APPROVED FOR CONSTRUCTION |             |                   |   | RANGE OF FUNDS AVAILABLE FOR PROJECTS |           |            |                   |
|----------------------|--------------------------------------|-------------------|------------|---|----------------------|-------------------|-------------------|---|---------------------------|-------------|-------------------|---|---------------------------------------|-----------|------------|-------------------|
|                      | Estimated Total Cost                 | Federal Aid       | NUMBER     | Grade Crossing Project Status (Completed or Under Construction) | Estimated Total Cost | Federal Aid       | NUMBER            | Grade Crossing Project Status (Completed or Under Construction) | Estimated Total Cost      | Federal Aid | NUMBER            | Grade Crossing Project Status (Completed or Under Construction) |                                       |           |            |                   |
| Alabama              | \$ 807,825                           | \$ 787,689        | 7          | 7   | \$ 158,039           | \$ 156,239        | 3                 | 1   | \$ 335,673                | \$ 335,451  | 5                 | 5   | \$ 800,717                            |           |            |                   |
| Arizona              | 373,753                              | 366,038           | 4          | 4   | 168,266              | 168,266           | 1                 | 1   | 29,350                    | 29,350      | 1                 | 2   | 207,575                               |           |            |                   |
| Arkansas             | 1,191,435                            | 1,184,682         | 11         | 16  | 452,612              | 452,283           | 5                 | 5   | 173,573                   | 171,563     | 1                 | 1   | 376,371                               |           |            |                   |
| California           | 474,671                              | 472,281           | 4          | 19  | 1,449,884            | 1,258,196         | 9                 | 1   | 259,574                   | 259,574     | 1                 | 7   | 1,475,808                             |           |            |                   |
| Colorado             | 299,792                              | 299,792           | 1          | 1   | 143,040              | 143,040           | 2                 | 2   | 407,329                   | 400,096     | 3                 | 3   | 613,695                               |           |            |                   |
| Connecticut          | 622,002                              | 611,366           | 5          | 1   | 166,222              | 165,115           | 2                 | 2   | 293,080                   | 283,416     | 2                 | 2   | 331,689                               |           |            |                   |
| Delaware             | 108,682                              | 108,682           | 4          | 4   | 94,135               | 94,135            | 1                 | 1   | 697,074                   | 508,721     | 3                 | 1   | 51,900                                |           |            |                   |
| Florida              | 351,276                              | 346,282           | 3          | 1   | 279,548              | 278,559           | 3                 | 4   | 626,585                   | 622,329     | 5                 | 35  | 709,591                               |           |            |                   |
| Georgia              | 255,273                              | 253,240           | 5          | 13  | 1,249,432            | 1,249,432         | 10                | 7   | 1,013,911                 | 1,013,911   | 4                 | 21  | 1,171,888                             |           |            |                   |
| Idaho                | 304,809                              | 293,297           | 5          | 36  | 14,943               | 14,943            | 6                 | 1   | 325,787                   | 309,720     | 5                 | 4   | 265,130                               |           |            |                   |
| Illinois             | 1,337,272                            | 1,820,332         | 13         | 101   | 1,791,514            | 1,583,915         | 6                 | 1   | 510,722                   | 493,716     | 4                 | 25  | 1,937,707                             |           |            |                   |
| Indiana              | 956,658                              | 948,442           | 5          | 2   | 782,193              | 769,706           | 6                 | 1   | 137,796                   | 132,087     | 3                 | 35  | 886,306                               |           |            |                   |
| Iowa                 | 550,420                              | 532,395           | 6          | 98  | 879,547              | 661,127           | 7                 | 2   | 655,132                   | 626,332     | 2                 | 57  | 530,721                               |           |            |                   |
| Kansas               | 1,005,452                            | 997,541           | 12         | 20  | 383,757              | 385,157           | 8                 | 1   | 435,188                   | 434,873     | 2                 | 1   | 941,250                               |           |            |                   |
| Kentucky             | 614,326                              | 586,272           | 10         | 10  | 1,083,812            | 1,082,812         | 8                 | 1   | 147,955                   | 141,842     | 2                 | 1   | 352,604                               |           |            |                   |
| Louisiana            | 438,1543                             | 425,254           | 3          | 2   | 202,163              | 202,163           | 4                 | 4   | 702,474                   | 701,306     | 7                 | 1   | 766,048                               |           |            |                   |
| Maine                | 179,1563                             | 178,645           | 1          | 2   | 113,072              | 113,072           | 2                 | 2   | 278,011                   | 278,011     | 1                 | 1   | 115,569                               |           |            |                   |
| Maryland             | 183,547                              | 183,543           | 1          | 3   | 482,459              | 450,666           | 2                 | 6   | 749,953                   | 749,475     | 3                 | 16  | 231,439                               |           |            |                   |
| Massachusetts        | 16,588                               | 16,588            | 1          | 1   | 435,901              | 425,263           | 2                 | 2   | 1,408,925                 | 1,407,670   | 6                 | 3   | 908,106                               |           |            |                   |
| Michigan             | 1,462,976                            | 1,406,448         | 9          | 2   | 1,250,755            | 1,250,755         | 3                 | 4   | 320,322                   | 320,322     | 1                 | 5   | 864,308                               |           |            |                   |
| Minnesota            | 1,496,156                            | 1,485,600         | 14         | 3   | 1,023,080            | 1,023,080         | 6                 | 4   | 483,266                   | 483,266     | 1                 | 4   | 771,206                               |           |            |                   |
| Mississippi          | 327,019                              | 327,019           | 5          | 5   | 743,375              | 743,375           | 9                 | 6   | 50,399                    | 50,399      | 1                 | 11  | 640,125                               |           |            |                   |
| Missouri             | 1,163,344                            | 1,163,785         | 6          | 4   | 2,034,922            | 1,579,502         | 6                 | 4   | 59,161                    | 59,161      | 1                 | 1   | 1,283,235                             |           |            |                   |
| Montana              | 440,750                              | 440,748           | 5          | 5   | 1,74,019             | 1,74,019          | 2                 | 6   | 6,645                     | 6,645       | 2                 | 2   | 512,684                               |           |            |                   |
| Nebraska             | 447,821                              | 445,313           | 3          | 1   | 912,016              | 912,016           | 15                | 1   | 391,610                   | 391,610     | 8                 | 19  | 156,242                               |           |            |                   |
| Nevada               | 75,015                               | 74,810            | 1          | 20  | 120,830              | 120,830           | 3                 | 1   | 71,448                    | 71,448      | 1                 | 5   | 103,867                               |           |            |                   |
| New Hampshire        | 107,016                              | 106,980           | 3          | 4   | 207,740              | 206,960           | 3                 | 1   | 158,129                   | 158,129     | 3                 | 1   | 206,973                               |           |            |                   |
| New Jersey           | 278,937                              | 278,937           | 2          | 4   | 1,192,373            | 1,066,823         | 6                 | 1   | 336,075                   | 296,075     | 2                 | 2   | 812,665                               |           |            |                   |
| New Mexico           | 421,713                              | 413,138           | 5          | 6   | 2,960                | 2,960             | 5                 | 17  | 259,103                   | 252,068     | 3                 | 2   | 403,805                               |           |            |                   |
| New York             | 1,534,851                            | 1,491,256         | 9          | 42  | 3,844,164            | 3,788,193         | 5                 | 5   | 633,245                   | 539,285     | 2                 | 26  | 2,756,151                             |           |            |                   |
| North Carolina       | 937,850                              | 936,902           | 12         | 4   | 531,723              | 531,723           | 7                 | 1   | 220,243                   | 220,243     | 1                 | 1   | 921,499                               |           |            |                   |
| North Dakota         | 417,947                              | 415,903           | 5          | 23  | 468,470              | 455,533           | 11                | 1   | 300,900                   | 300,900     | 5                 | 5   | 555,963                               |           |            |                   |
| Ohio                 | 1,676,506                            | 1,605,312         | 10         | 2   | 2,367,274            | 2,367,274         | 1                 | 4   | 1,356,530                 | 1,316,530   | 3                 | 3   | 1,336,259                             |           |            |                   |
| Oklahoma             | 963,354                              | 957,549           | 12         | 1   | 156,982              | 152,076           | 4                 | 4   | 1,220,467                 | 1,160,510   | 8                 | 3   | 1,105,268                             |           |            |                   |
| Oregon               | 208,640                              | 159,119           | 1          | 1   | 411,078              | 347,465           | 4                 | 4   | 18,280                    | 18,280      | 1                 | 4   | 392,976                               |           |            |                   |
| Pennsylvania         | 1,484,274                            | 1,474,798         | 14         | 2   | 3,144,763            | 3,110,554         | 21                | 1   | 1,218,306                 | 1,213,759   | 5                 | 5   | 2,219,982                             |           |            |                   |
| Rhode Island         | 8,222                                | 7,406             | 2          | 12  | 206,703              | 206,703           | 1                 | 4   | 570,001                   | 437,427     | 5                 | 3   | 178,256                               |           |            |                   |
| South Carolina       | 541,470                              | 540,820           | 5          | 3   | 195,235              | 185,135           | 3                 | 1   | 481,323                   | 465,373     | 8                 | 9   | 726,254                               |           |            |                   |
| South Dakota         | 179,106                              | 175,621           | 1          | 5   | 517,332              | 517,332           | 15                | 4   | 465,373                   | 465,373     | 8                 | 3   | 644,755                               |           |            |                   |
| Tennessee            | 244,480                              | 231,146           | 2          | 2   | 490,316              | 481,316           | 4                 | 3   | 929,038                   | 929,038     | 5                 | 1   | 925,530                               |           |            |                   |
| Texas                | 1,162,473                            | 1,149,149         | 12         | 1   | 1,789,368            | 1,773,181         | 19                | 1   | 622,016                   | 570,009     | 6                 | 2   | 1,576,201                             |           |            |                   |
| Utah                 | 149,862                              | 149,1545          | 1          | 56  | 67,432               | 68,690            | 3                 | 7   | 109,004                   | 109,004     | 38                | 38  | 237,059                               |           |            |                   |
| Vermont              | 257,284                              | 257,024           | 4          | 2   | 5,967                | 5,967             | 4                 | 1   | 259,516                   | 259,516     | 2                 | 3   | 50,418                                |           |            |                   |
| Virginia             | 457,084                              | 454,594           | 4          | 3   | 616,419              | 616,419           | 4                 | 5   | 259,348                   | 239,388     | 2                 | 3   | 585,154                               |           |            |                   |
| Washington           | 422,323                              | 417,341           | 4          | 14  | 373,654              | 379,654           | 3                 | 2   | 9,250                     | 9,250       | 3                 | 3   | 456,706                               |           |            |                   |
| West Virginia        | 232,330                              | 232,330           | 2          | 4   | 440,682              | 435,062           | 5                 | 2   | 469,800                   | 469,800     | 4                 | 1   | 509,681                               |           |            |                   |
| Wisconsin            | 948,394                              | 934,955           | 7          | 12  | 802,619              | 772,758           | 4                 | 1   | 251,283                   | 251,161     | 1                 | 4   | 1,160,467                             |           |            |                   |
| Wyoming              | 91,384                               | 91,379            | 1          | 2   | 480,106              | 480,104           | 6                 | 6   | 5,322                     | 5,322       | 1                 | 5   | 290,375                               |           |            |                   |
| District of Columbia | 56,868                               | 56,868            | 1          | 1   | 2,193                | 2,193             | 4                 | 4   | 296,213                   | 273,744     | 1                 | 1   | 1,462                                 |           |            |                   |
| Hawaii               | 8,416                                | 8,416             | 5          | 2   | 405,282              | 404,759           | 4                 | 4   | 181,412                   | 181,412     | 1                 | 1   | 181,412                               |           |            |                   |
| Puerto Rico          | 90,290                               | 89,720            | 5          | 5   | 742,969              | 735,496           | 10                | 10  | 337,988                   | 337,988     | 1                 | 1   | 337,988                               |           |            |                   |
| <b>TOTALS</b>        | <b>29,432,425</b>                    | <b>28,854,997</b> | <b>264</b> | <b>56</b>   | <b>876</b>           | <b>36,090,023</b> | <b>34,549,096</b> | <b>263</b>  | <b>69</b>                 | <b>118</b>  | <b>20,562,156</b> | <b>19,772,666</b>   | <b>129</b>                            | <b>36</b> | <b>470</b> | <b>35,551,546</b> |



